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PAPER TRADE JOURNAL

ESTABLISHED 1872

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

FIFTY-THIRD YEAR

Published Every Thursday by the
LOCKWOOD TRADE JOURNAL CO., Inc.

LESLIE R. PALMER, President — GEO. S. MACDONALD, Vice-President & Treas. — F. K. HOPPIE, Secretary

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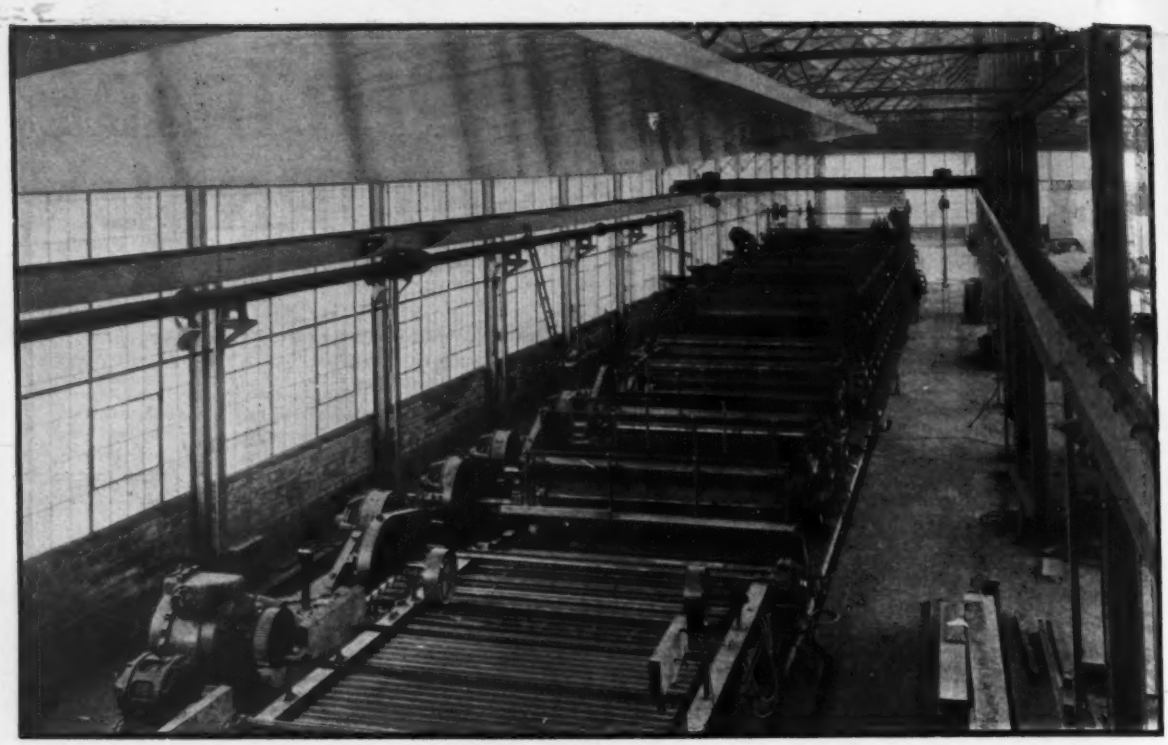

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PAPER TRADE JOURNAL

With Which Is Combined

PAPER

Vol. LXXXI. No. 8 — Thursday, August 20, 1925

The Magazine of the Paper Industry

American Paper And Pulp Forester Appointed

D. A. Crocker, of Williamsport, Pa., Engaged to Extend Association Work to Members—Graduated From Biltmore Forest School in 1907 Since Which Time He Has Had Varied Experience—First Actual Work Will Be Making a Survey of Pulpwood Conditions in Lake States—Then Visits Mills in Virginias and Carolinas

The American Paper and Pulp Association has added to its staff a forester whose work will be more particularly carried along in connection with the activities of the Woodlands Section. The man selected for this important work is D. A. Crocker of Williamsport, Pa., and he entered upon his new duties on Monday.

Biltmore School Forest Man

Mr. Crocker graduated from the Biltmore Forest School in 1907, the school at that time being on George Vanderbilt's Biltmore Estate. For a time he worked on practical forestry work in the south after which he entered the forestry department of the Laurentide Company, Ltd., where he remained during 1908 and a part of 1909. In 1910 he went to the forestry department of the Great Northern Paper Company where he remained until 1916 when he went with the Eastern Manufacturing Company. At first he acted as forester but was later made manager of all the woods operations, holding a vice presidency in the company during the latter part of his service with it. He left the employ of this company in 1924, since which time he has been adding to his forestry knowledge and experience in various ways.

To Extend Association Work

The basic idea in adding Mr. Crocker to the working staff of the American Paper and Pulp Association is to extend the association work to its members. His work will be of especial helpfulness to those members who own timberlands or who are considering the advisability of entering upon timberland ownership. Mr. Crocker, in an interview with a representative of THE PAPER TRADE JOURNAL, stressed the point, however, that his work will be of importance to a great majority of the members if not all because of the close relationship between wood supply and cost and pulp and paper costs.

While Mr. Crocker's headquarters will be at the executive offices of the American Paper and Pulp Association at 18 E. 41st street, this city, his work will keep him in the field a greater portion of the time.

His Initial Efforts

Already a superficial program of his work has been mapped out and he will lose no time in plunging into it. Within a few days he will start on a tour of the Lake States for the purpose of studying pulpwood conditions in that territory. This work will take him at least two months.

After that assignment has been completed he will enter upon some work in the interests of the mills in the Virginias and Carolinas.

Mr. Crocker is enthusiastic over the opportunities which his new field will open up to him and believe time will prove conclusively that the work will be of practical benefit to the Association and its membership.

Fraud Is Alleged in Paper Mill Sale

In a suit which came to light last week through argument of a motion for a change of venue, the McGraw-Hill Company, Inc., and the United Publishers' Corporation, publishers of trade papers and magazines, allege they were induced by misrepresentations to pay $2,400,000 in April, 1920, for the capital stock of the Newton Falls Paper Company of Newton Falls, N. Y.

The publishers, it is stated, were sorely in need of paper at the time the stock was offered to them, and they acted in haste because the persons who held the stock told them another big publishing house was anxious to close a deal for it.

Although the publishers sent a representative to Newton Falls to investigate claims made by the stockholders, this representative found the property covered with snow, and instead of remaining until he could check up on all the claims of the stockholders, replied, chiefly on their own representations, that everything was all right.

It is alleged that after the publishers acquired the stock they found the property was not what it had been represented to be, and it was necessary for them to spend $1,000,000 filling up deficiencies in equipment.

Those named as defendants are Stuart D. Lansing, President of the Jefferson County National Bank; Virgil K. Kellogg, up-State attorney and politician; Frank L. Moore, former President of the American Paper and Pulp Association; Carrie B. Lansing, Jessie B. Kellogg, Madeline Bagley, Mabel Moore, Florence H. Finnegan, Laura Bushnell, Lottie Bushnell and Anna I. George, former stockholders, and the Jefferson County National Bank as trustee.

The motion for a change of venue was made before Supreme Court Justice Churchill by Richard Everett Dwight of Hughes, Rounds, Schurman & Dwight, attorneys for the defendants. They asked that the case be transferred to Jefferson County. Justice Churchill reserved decision.

Alton Boxboard Company Damaged by Fire

ALTON, Ill., August 17, 1925.—The plant of the Alton Box board and Paper Company was damaged by fire last week. The damage is estimated at $150,000, covered by insurance.

Paper Distribution in Philadelphia Improving

This Especially Applies to Coarse Papers Which Now Hold Most Advantageous Position in Months—Lack of Materials Forces General Advance in Paper Stock—Rapid Transit Gets Keystone Paper Plant—A. S. Datz and Sons to Have New Home

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., August 17, 1925.—Though August normally is a month of duller business trend and the trade anticipates not more than a drifting mid summer business at this season it is gradually showing higher records in paper distribution. This is particularly true for the sales of coarse papers just now estimated to be the best that the trade has noted within recent months. The fine paper markets are not as active as the coarse and it is not expected that they will keep pace with the latter owing to the extreme dull times existing in the printing industry and allied trades with the exception of the larger publishing houses, these being the chief source of buying for the mill orders in books, covers and other grades of publishers papers. A few scattered orders have emanated from the larger printing and advertising printing concerns and like the publishers' demands have been confined to mill quantities. It is the smaller consumer of fine paper who just now is not in the market and whose absence is responsible for the lack of orders in the grades than those used in book manufacturing and advertising.

Coarse Papers Show Improvement

Despite the apparent drifting tendency which prevailed during the previous month in the coarse paper markets, many of the dealers who have completed their estimates of July sales, were agreeably surprised in the increased demand which actually was shown over the same period of 1924. While July, to a few of the dealers, was recorded as the best business month so far this year the August sales have been gradually assuming even more broad proportions and to date the outlook is very favorable for a continuance of the betterment of the first half of the month. Not only is there evidence that the jobbing trade is improving but there is ground to believe that the mills too are sharing in the betterment from the fact that mill offerings reflect a steadier price trend and in many lines have been advanced. The freer offerings of last year have entirely been eliminated from the local markets, leading the dealers to believe that overproduction in the mills is a thing of the past. These conditions indicate favorably the prospects for the future of the paper industry.

Prices Show Steadier Markets

Owing to the fact that a couple of large manufacturers of building papers have withdrawn from the market, after announcing that they have discontinued production temporarily, these commodities have been considerably advanced and now are at the highest levels of the year. There is no abnormal demand for builders papers to warrant the price advances the factor entering into the changes being a matter of low mill production rather than demand. Butchers fibres show a steadier trend with screenings quoted at ¼ cent advance to the pound owing to the numerous mill demands. Krafts have been holding to the prices to which they were advanced a month ago. Tissues too are steadier but have not been subjected to price changes holding at the lower quotation to which they were reduced within recent weeks. Toilets are now at the pre-war levels especially for the 1000 and 2000 sheets rolls.

Stock Prices Show Higher Tendency

Though there is but little mill buying in paper stocks prices are advancing due to lack of materials and scarcity in collections. There is no accumulation of the better grades of the raw materials in the warehouses while but small quantities of low grades of paper stocks are available. Dealers report that these stocks have not been collected as fully as could be because of the unprofitable low prices that the mills are willing to pay.

Federal Reserve Report

Employment and wages as reported by the Federal Reserve Bank in its letter issued August 15 shows that there was an increase of 1.3 in employment and a general wage increase of 3.6 per cent with an average wage increase of 2.4 per cent in the 12 paper and pulp plants in Pennsylvania reporting to the Bank for the month of July. In the district coming under the jurisdiction of the Philadelphia Reserve Bank in South Jersey it was shown that in the eight plants reporting there was a decrease of employment of 12.7 per cent and a total wage decrease of 12.3 per cent and an average wage increase of 0.4 per cent. The large decreases were due to the figures of one plant the Federal Reserve Report states.

Fine Paper Dealers Meet

There was a consensus of opinion among the fine paper dealers meeting at the monthly session of the Fine Paper Division of the Philadelphia Paper Trade Association held during the week in the Bourse Restaurant that the industry shows improvement and Fall prospects brighter. Owing to the absence from the city of many of the members, on their summer vacation, there was no business contracted. The dealers after partaking of the luncheon with the D. L. Ward Company as host and represented by W. W. Seary, turned their attention to the all important topic just now of "What Prospects For The Fall," with unanimous opinion of much improvement as the autumn business revival approaches in the industrial world. Present sales were reported satisfactory for this season of the year.

Purchasing Agent for Hamilton and Sons

Following the severing of his association with the purchasing department of the W. C. Hamilton and Sons, paper mills, at Miquon near Philadelphia, Eugene Bowerman became affiliated with his brother-in-law, Freas B. Snyder, in the new Brotherhood Bank of the Locomotive Engineers at Broad and Chestnut Streets. President Snyder of the Brotherhood Bank is well known to the trade having formerly been head of the Hamilton Mills while it was under the former ownership. With the resignation of Mr. Bowerman the duties of Purchasing Agent have been assigned to Roy Bell.

Old Paper Mill Passes to New Owners

With the sale of the old mills of the Keystone Paper Company, at Upper Darby, the local manufacturing industry loses one of its land marks. During the week the trade learned that the Keystone Company's plant in Upper Darby Township has passed into the hands of the Philadelphia Rapid Transit Company and will be used as a Terminal tract to enlarge the present station at this point. The old mills dated back more than a century and formerly were owned by a member of the well known paper making and distributing family of the Quaker City and environs. Under the last ownership the Keystone Paper Company, with President David Lindsay, Sr., Vice-President W. Allen Lindsay, Treasurer J. Horace

Lindsay and Secretary David Lindsay, Jr., the mills were devoted to the manufacture of wrappings and glassines. A little over a year ago the Keystone Mills were destroyed by fire but two buildings of the six on the property remained intact. There is still pending in the Courts at Media litigations over the payment of fire insurance indemnity with 28 companies involved. The trial was to have come up this month but has been postponed until October. The same personnel which controled the Keystone Mills also are owners of the fine paper distribution firm of Lindsay Brothers, Inc., 419 S. Front Street.

A. S. Datz and Son To Build

A new home for A. S. Datz and Sons on the former site occupied by the firm will be erected during the coming year, construction work having been started this week when the contractors began tearing down the old premises at 16 and 18 S. Marshall Street. In place of the old quarters occupied by the firm for the past 15 years as a fine and box papers distribution center there will be erected a modern seven story and basement structure of the latest fireproof construction type. It was planned to start building operations last April when the firm vacated the property to take over its present temporary quarters at 143 N. Front Street but owing to labor difficulties the rebuilding was postponed. It is expected that the new home will be ready for occupancy by next Fall. The Datz concern has been organized for more than a quarter century and formerly was known as the Datz and Matthias Company. Its present head is John F. Datz, who enjoys an extensive box and printing paper distribution business.

Cherry River Paper Co. To Bleach Products

Announcement is made by the Cherry River Paper Company of its new business policy of bleaching papers. At local headquarters in the Pennsylvania Building it was learned that the company has been successfully producing bleached white papers. Recently the Cherry River Company installed a complete bleaching plant in its mills in Richwood, W. Va., where it has manufactured manilas for many years.

Installing Sprinkler System

Installation of a complete sprinkler system in the six story building owned by Wilder Brothers, coarse paper distributors, 12th and Brown Streets was started during the past week. The entire building which occupies the triangular piece of ground at Brown, 12th and Olive streets, and extending half a city block, is to be equipped with the sprinkler fire protection devices manufactured by the Automatic Fire Sprinkler Company, 25 S. Orianna Street and is being installed under the supervision of H. G. Vogel of the local offices. The building has been occupied by Wilder Brothers for the past three years. With the new installations the firm will be assured adequate fire protection and lower insurance rates. Recently the firm took over the agency for the Angier Mills and is now distributing its line of waterproof papers with C. H. Hobbs as Manager of the Waterproof Department.

Crown-Willamette Paper Co. Buys Timber Tract

EUGENE, Ore., August 17, 1925.—The Crown-Willamette Paper Company of Oregon City has purchased 12,000,000 feet of timber in the Siuslay National Forest about a mile southwest of Westlake on the Siltcoos lake, according to announcement of R. W. Shelley, Supervisor.

The company will start logging off the track next summer. It contains a considerable amount of spruce, which was contracted for at $2.62½ per thousand and some fir and cedar, contracted for at $1.25.

The company owns a considerable amount of other timber in the same vicinity and may operate extensively, it is said.

The logs would be brought across Siltcoos lake to Ada station on the Coos bay branch line of the Southern Pacific Company, loaded there for transportation to the mill at Oregon City.

Fort William Paper Co. Strike Settled

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., August 17, 1925.—The three days' session of the executive board of the International Brotherhood of Papermakers held in New York City resulted in the settlement of the strike at the Fort William Paper Company plant, at Fort William, Ont., according to announcement made at union headquarters in this city. Nothing of a definite nature, which might possibly lead up to a settlement of the long drawn-out fight between the International Paper Company and the Brotherhood, was accomplished at the meeting. While the sessions of the executive board were called primarily to adjust matters with the Fort William Paper Company, it was expected that certain recommendations might be made by the Brotherhood to local unions in towns where I. P. mills are located.

The first day of the meeting was given over entirely to a discussion of the situation at Fort William. C. H. L. Jones and Roderick Olzendam represented the Spanish River Co. The issue largely concerned the right of the paper company to clothe the machines on Sunday. It was contended by the union that such work was in violation of the agreement that was signed last May with the Spanish River Co. After several hours' discussion Mr. Jones agreed to the renewal of the agreement that was in effect from May 1, 1924 up to May 1 of this year and which does not permit of such work being done by members of the craft.

In talking over matters with the union representatives Mr. Jones emphasized one thing which may have a far reaching effect in the paper industry and which may be a matter of importance and discussion at the next convention of the brotherhood. He called attention to the fact that industrial conditions were changing with the times and that with sharper competition there was urgent need of certain changes in the rules governing the papermakers' union. It was on the pledge of the union representatives attending the conference, that his suggestions would receive consideration at the next convention, that he agreed to return to the agreement of the previous year. As soon as it was decided to call off the strike at the Fort William plant word was sent to Fort William notifying the employes of the company.

Officials of the Brotherhood appear reluctant to discuss any move that might be inaugurated on their part to bring about a settlement of the I. P. Company strike which has cost the union several thousand members. The situation is regarded as rather ticklish and the union officials do not want to do anything which might in any way lessen their chances of a settlement. There exists a better feeling between the union and the company, it is said, due to the fact that the new head of the International Paper Company was not involved in the strike of May 1921.

Albert Coyle, editor of the Locomotive Engineers' Journal and secretary of the Purchasing counsel of labor editors, appeared before the executive board of the Brotherhood with a grievance relative to the use of the union water-mark but matters were amicably adjusted. The purchasing counsel of labor editors, it is said, uses about 200 tons, a month, of union water-marked paper.

Pacific Board Co. Gets New Machinery

[FROM OUR REGULAR CORRESPONDENT]

KELSO, Wash., August 8, 1925.—Three carloads of machinery have been received by the Pacific Straw Paper and Board Company, which is installing machinery at its plant on the Cowlitz River south of Kelso and Longview. This shipment came by rail instead of water in order to save three weeks' time in installation and the final shipment of machinery will arrive about the middle of next month. The machinery comes from Middletown, Ohio.

More Canadian Stocks Listed in Stock Market

Interest in Securities in St. Maurice Valley Companies Stimulates Rumors of Proposed News Print Merger—New Zealand Publishers Looking to Canada for News Print Supply—Quebec Pulp and Paper Mills Secure Charter—Canada Paper Co. Expands

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., August 17, 1925.—One of the interesting developments of recent time has been the listing on the New York Curb Market of a number of Canadian securities. It was suggested some time ago that such a move was on foot and that the Canadian stocks placed on the New York markets would be fairly representative ones. It now develops that still another issue has been placed on the Curb during the past week. This is the common stock of the Northern Mexico Power and Development Company which has been for some time on the unlisted market here. A week or so ago both Shawinigan Water and Power and Consolidated Mining and Smelting Company were installed on the Curb, while previous to that Brazilian Traction, Atlantic Sugar and La Rose Mines were called. Locally, the listings are not regarded as being of much importance and it is stated that little trading is likely to occur in these stocks on the Curb.

Merger Plan Again Mooted

While very little has been heard within the past few months of the plan to merge several of the leading news print producing companies in the St. Maurice Valley, it is understood that this plan is by no means a dead issue. When this merger idea was first put forward the development came in for a great deal of comment in the press with the result that it is understood actual progress of negotiations was greatly hampered. Recently around the lower levels the securities of the St. Maurice Valley companies listed on the Stock Exchange have met with quite substantial enquiry which has resulted in the bringing about of price recoveries. Buying of this nature is reported as coming from influential and well informed sources who are familiar in the conviction that real progress in the merger plan is being made.

New Zealand Seeks Canadian News Print

A development of considerable interest to the Canadian pulp and paper industry is the apparent opening up of a broader market for Canadian news print in Australia and New Zealand. While Australia, especially, promises an excellent future market for news print, it is interesting to note that New Zealand is presently calling for tenders for a paper supply. The Newspaper Proprietors' Association of New Zealand is now asking for tenders for the supply of news print paper during 1926 up to 8,000 tons of reel news print and up to 2,000 tons of flat news print. It is believed that the Canadian mills will be logical ones to take care of the bulk of these requirements, and it is anticipated that the request for tenders will be met by these interests.

Quebec Mills Charter Obtained

The Quebec Pulp and Paper Mills, with a capitalization of $22,000,000 obtained a charter last week. The new company, as was recently announced, is authorized to acquire the business of the Chicoutimi Pulp Company, the Chicoutimi Port Company, the Saguaney Pulp and Power Company, the Chicoutimi Freehold Estates and the Saguenay Light and Power Company, as well as the capital stock of the Roberval-Saguenay Ry. Company, making a total of six companies to be merged in the new organization. The next step in the organization of this company is the calling of a shareholders' meeting which will take place within ten days or two weeks, when the board of directors will be elected.

Canadian Paper Expansion

The Canada Paper Company has been busy for some months creating an additional pulp mill at its plant at Windsor Mills, Que. The new mill is to produce pulp on a modified soda system and, when finally completed, should mean much in cutting down costs, due to the improved system on which the mill will operate. The new method of production is known as the Keebra process and is a distinct step forward in the production of pulp. The new mill should be in actual operation shortly.

Eddie Machine Makes Record

It is understood that the new news print paper mill of the E. B. Eddy Company at Hull, Que., says the *Financial Times* of Montreal, has proved surprisingly successful in its early operations. The news print machine which is rated at 100 tons capacity was not originally expected to produce much more than 60 to 65 tons daily during the first few months of operation. It is stated, however, that in approximately 10 or 12 weeks of production the output from the machine has risen consistently, and is now in excess of 90 tons per day.

This means that the installation was made in a manner which minimized those early hitches and worries always to be expected. The various parts of the machine "tuned up" with very little difficulty. Production of in excess of 90 tons per day from a 100 ton machine, even for one which has been operating for a number of years, is considered highly satisfactory, so that the success of the new Eddy machine is all the more remarkable.

It is stated that the mill is again operating after a short period of idleness due to the fact that production was well ahead of contract requirements of American news print purchases, because of this higher rate of production.

Request Data on Papeline Imports

Washington, D. C., August 19, 1925. The Fine Stationery Manufacturers Association has requested the Custom Service to compile some data for it showing the value and quantity of importations of papeteries through the ports of Boston, New York and Philadelphia, it has just become known here. This is being done.

None of the government officials seem to know why this survey was asked but it is assumed that the association wants the information either to file with the Tariff Commission in connection with the application, for an increased tariff rate or with the Custom Service, itself, on dumping charges.

It may be remembered that more than a year ago an application was filed with the Tariff Commission asking for an increase in the tariff rate on papeteries. At that time the experts of the Commission concluded that the importations were so small that they could not hurt domestic manufacturers. However, the association was requested to file further data if it had any. This has never been done and it is assumed here that the Customs Service has been enlisted to help in this work.

Cleary Mfg. Co. To Dissolve

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., August 17, 1925.—The Cleary Manufacturing Company has filed a petition with the Hampden County Superior Court asking for a dissolution of the corporation. The petition is signed by James F. Cleary and James F. Cleary, Jr. The concern was engaged in the manufacturing and selling of school supplies envelopes and the like but sold out to another concern some months ago and now desires to end its corporate existence. Attorney Thomas J. O'Connor is attorney for the company.

Announcing a New Method of Producing Bleach Liquors

WHEN our technical staff first attacked the problem of absorbing Liquid Chlorine to produce bleach liquors, there was available only the old-fashioned tower system. We first suggested the desirability of using the refrigerative effect caused by the vaporization of the Liquid Chlorine by means of our evaporating coil now in successful use in more than a score of paper mills and several large textile mills.

The development announced herewith has been brought about by our realization of the need for a method allowing more rapid absorption and more flexible utilization of existing bleach house equipment. The accompanying cut shows the construction of the chlorine absorber and its location in the chlorinating system. This new equipment possesses the following advantages:

Simplicity in contruction and operation are secured by the fact that the vaporization of the Liquid Chlorine and its subsequent absorption by the milk of lime solution is entirely effected within the chlorine absorber. In connection with the unit batch system with the ton container as the base for the desired batch, it furnishes foolproof operation with any grade of operating labor.

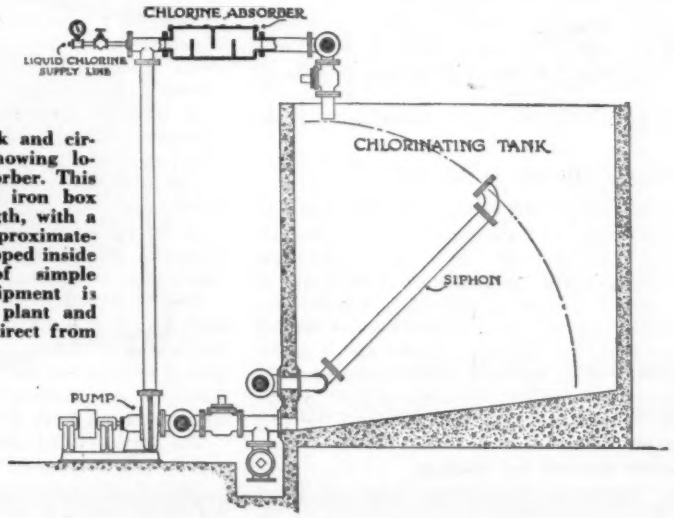
Refrigerative Effect of vaporization is utilized even to better advantage than with the coil, since it is localized just where the heat of reaction of the combination of the chlorine and the lime is momentarily concentrated.

Rapidity of Absorption is such that chlorination can proceed at the rate of 2,000 pounds of chlorine per hour or better, depending on the capacity of the circulating pump. The advantage of this speed for large operations is evident.

Flexibility is a prime feature of this method, in that a single "chlorine absorber" can be used to successively chlorinate any number of tanks.

Accurate Control of the liquor, when the unit batch system is not used, is assured by the fact that liquor is available for testing at the exact point of chlorination.

Developments such as this, in the manufacture, transportation and use of this highly technical product, accrue primarily to the benefit of our customers. Because consumers appreciate this fact, the Mathieson Company is today the largest shipper of Liquid Chlorine in the United States.



Chlorinating tank and circulating system, showing location of new absorber. This consists of a cast iron box about 2 ft. in length, with a cross-section of approximately 10" x 10," equipped inside with a series of simple baffles. This equipment is made at our own plant and may be obtained direct from us.

The MATHIESON ALKALI WORKS, *Inc.*

250 PARK AVE. NEW YORK CITY

PHILADELPHIA CHICAGO PROVIDENCE CHARLOTTE

Toronto Paper Sales Show General Improvement

Past Few Days Has Brought Material Change for the Better—Conditions Looking Particularly Bright to the Book Mills—Hon. James Lyons Speaks Encouragingly of Wooded Wealth of Ontario—Pulpwood Peeling Season Draws to Close

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ontario, August 17, 1925.—The paper business so far as sales are concerned, has picked up some during the past few days in Toronto. This is occasioned by the advent of the Canadian National Exhibition, which opens next week and means the distribution of a vast quantity of printed matter among the million and a half patrons who are expected, during the two weeks, to attend the great fair which is the biggest event of its kind. Then, owing to excellent crops and the prospects for higher prices on some lines of farm produce, a better feeling is gradually spreading throughout the financial and commercial world.

The rag and paper stock market is slowly improving and there is a consistent demand from the mills for stock, which is none too plentiful. This is occasioned by the low prices and the holiday season. It is hoped that an upward price tendency will soon manifest itself which will result in larger gatherings of materials.

In the pulp line, prices remain about the same. No paper mills are, however, buying beyond immediate requirements and ground wood manufacturers are piling stock, which is usual at this season of the year, in anticipation of fall demand.

Book Mills Make Plans

The book mills have decided to manufacture No. 7 grade bond in pink, blue and buff which will be about twenty per cent cheaper than No. 6 grade. The Provincial Paper Mills report having experienced better business conditions this year. Up to the present, the gross sales have shown a gain and the net profits on operation have been larger, due in part to an increase in turnover and in part to the higher average prices realized this year as compared with last, although no changes in quotations have been made in recent weeks. In regard to the future, an official of the company stated that, for the rest of the current year, unfilled orders on the books were larger than at any time previously in 1925. It looked as if net profits for the full year will be better than those in 1924. In respect to the prospect for an increase in dividend, it is stated by the company that it is too early in the year to make any predictions along this line.

Finding Ready Sale in Australia

In the Port Arthur division of the company there is now being turned out a standard quality of book paper, which is finding a ready sale in Australia and New Zealand, as a result of the recent trade treaty between Canada and those countries. Five cars of mixed lots of book paper were recently shipped to Australia and it is believed that this trade will develop. In addition, the company has orders for several other cars for the Antipodes and is gradually shifting the production of standard grade book paper for export from its Mille Roches mill to the plant at Port Arthur, which will ultimately specialize on the requirements of the west and for foreign demand.

Better Outlook for Business

Charles V. Syrett, manager of the Victoria Paper and Twine Company, Toronto, in a recent address before the Kiwanis Club, said that business was good in some lines, unfavorable in others and in some tends to improve. In his own line, there was an increase of sales over last year. Mr. Syrett added that manufacturers had just passed through a difficult period and were now emerging from a state of chaos. People were buying not heavily but consistently. Busines men grew careless during the war and the adversity since then had been good in making them knuckle down to work again. In regard to the general morale of business, Mr. Syrett declared that there was still much room for improvement.

Mr. Backus Will Erect Mill

Fort Frances, Ont., is going to have another addition to the paper mill equipment of that town. An agreement entered into with the Backus interests was recently ratified by the ratepayers almost unanimously. The new news print mill will have a capacity of one hundred and fifty tons and construction will start early this fall and the plant will be in operation by December of next year. The town consented to a flat assessment rate of $350,000 on the entire mill and this will mean bringing into Fort Frances about 25,000 horse power. About two and a half million dollars will be expended by the Backus organization in the erection of the new mill, the power development and electric transmission line.

Notes and Jottings of the Industry

John Waters of the sales staff of Barber-Ellis, Limited, has returned after spending his holidays at Lake Rosseau, Muskoka district.

T. E. Gain, vice president of the Ratcliff Paper Company, is home again after enjoying a vacation at Belmont, Muskoka Lakes.

The annual meeting of the Spanish River Pulp and Paper Mills will be held at the office of the company, Bank of Hamilton building, Toronto, on Thursday, Sept. 24.

Norman J. Ratcliff, secretary of the Ratcliff Paper Company, is holidaying at Lake Joseph, Muskoka district.

E. C. Martin, of the Interlake Tissue Mills Co., is holidaying at the Lake of Bays and William Parks, mill manager, Merritton, is enjoying a vacation at Algonquin Park, Ont.

George A. Davidson, sales manager of the Howard Smith Paper Mills, Montreal, formerly of Toronto, and Mrs. Davidson, have returned after a visit to Bermuda.

O. H. Moore, general manager of the Hinde and Dauch Paper Company of Canada, is spending the month of August at his summer home, Port Sandfield, Muskoka Lakes.

I. H. Weldon, president of the Provincial Paper Mills, Toronto, is spending a few days in the Nipissing district of Ontario.

R. H. Lock, purchasing agent for the Canadian Paperboard Company, the secretary of the Montreal Purchasing Agents' Association, is spending his holidays in Toronto and vicinity.

Miss K. Flanagan, of the Hinde and Dauch Paper Company's staff, who went to England recently as a member of the Canadian girl contingent to take part in the ladies' athletic contests, captured second prize in the 220 yards race. Previous to her leaving Toronto she was presented by O. H. Moore, on behalf of the staff of the company, with a purse of gold and a travelling set.

The Spruce Falls Co., whose sulphite pulp plant is at Kapuskasing, Ont., have removed their Toronto office from 9 College street to 1203 Northern Ontario building, which is a new skyscraper in the central section of the city. J. H. Black, who is now President and General Manager of the Company, has taken up his quarters there.

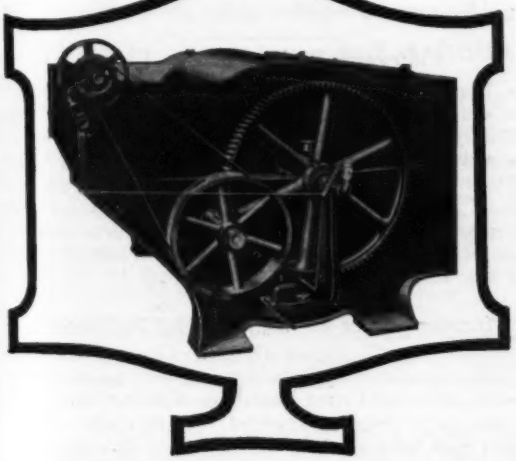
The Howard Smith Paper Mills have sent out to the jobbing trade a neat book, handsomely bound in leather, containing samples of the different lines produced. These pocket size books have in turn been handed out to the individual salesmen of the wholesale houses and on each is printed in gilt letters the name of the bearer.

Today's profits

are coming from decreased operating costs rather than increased prices. That most paper manufacturers are realizing the truth of this is shown by the extraordinarily large number of recent Bird machinery installations, particularly of Bird Save-Alls.

The BIRD SAVE-ALL

plays an important part in maintaining a satisfactory margin of profit. It goes straight to the heart of one very serious production loss—white water waste.



Bird Save-Alls, installed wherever white water is allowed to escape, make expensive fibres represent a profit instead of a loss. Simple, automatic, inexpensive, the cost of installation is quickly absorbed by the steady savings that pile up day after day.

Is there some place in your mill where white water is allowed to go to waste? If there is, ask us to supply the necessary facts and figures on Bird Save-All equipment.

BIRD MACHINE COMPANY
South Walpole Massachusetts 8211

Western Representative
T. H. Savery, Jr., 1524 Republic Bldg., Chicago, Ill.

BIRD MACHINERY

Canadian Builders of Bird Machinery
Canadian Ingersoll-Rand Co., Limited
260 St. James Street
Montreal, Canada

Official Opening of Corner Brook Mill

The official opening of the new Corner Brook mill of the Newfoundland Power and Paper Company, Ltd., will be held next Monday and Tuesday. The New York party which included R. S. Kellogg, secretary of the News Print Service Bureau, W. G. MacNaughton, secretary of the Technical Association of the Pulp and Paper Industry, representatives of the New York office and several invited guests left New York Tuesday night for Montreal. There they were to be joined by a considerable number of other guests and were scheduled to sail from Montreal at 3 o'clock yesterday afternoon on the steamer Nayarit of the N. Clarke Steamship Company, Ltd., of Quebec. They are due to arrive at Quebec at 3 o'clock this afternoon when the party will further be augmented. From there the party will continue its course to Corner Brook.

The program for the two days will begin at 10 o'clock next Monday morning when the paper mills at Corner Brook will be officially opened by H. E. Sir William Allardyce. K.C.M.G., Governor of Newfoundland.

At 10:30 the party will be escorted about the plant for a thorough inspection of all its details. At 12:30 a buffet luncheon will be served at the plant.

At 3:30 Monday afternoon the visitors will attend the official opening of the Corner Brook Hospital at which Lady Allardyce will officiate. An hour later a visit will be paid to Townsite and at 5:30 tea will be served at Glynmill Inn. The official dinner will be attended at 7:30 Monday night at the paper warehouse. Following the dinner, dancing will start at 11 p. m. and will be the closing event of a very busy day.

At 10 o'clock Tuesday morning a special train will convey the visitors to Deer Lake where they will arrive at 12 o'clock. A visit will then be paid to the power house and forebay. At 1:30 a buffet luncheon will be served.

At 3 o'clock a special train will convey the party to the Canal Intake and the main dam. At 5 o'clock two special trains will leave, one the Grand Falls special which will take those who care to go to Grand Falls and the other the St. John's Express which will leave for St. John's.

At 5:45 a special train will leave on the return for Corner Brook, arriving at Corner Brook at 7:30 where the two days' program will be concluded.

July News Print Statistics

Production of news print in the United States during July, 1925, according to the News Print Service Bureau, amounted to 121,113 tons and shipments to 119,149 tons. Production in Canada amounted to 121,664 tons and shipments to 122,305 tons, making a total United States and Canadian production of 242,777 tons and shipments of 241,454 tons. There was also 6,622 tons of news print made in Newfoundland and 1,165 tons in Mexico in July, so that total North American production for the month amounted to 250,564 tons and for the first seven months of the year to 1,798,207 tons. The news print mills also made 1,651 tons of hanging paper, 732 tons of which were made in Canada. Stocks of news print paper at United States mills totaled 34,079 tons at the end of July, and at Canadian mills 23,258 tons, making a combined total of 57,337 tons, which was equivalent to 5.3 days' average production. During July the United States mills operated at 83.8 per cent of capacity and the Canadian mills at 90.4 per cent.

Comparing production during the first seven months of 1925 with same period of each of the five previous years the United States mills made 2 per cent more than in 1924, and about the same as in 1923, 9 per cent more than in 1922; 24 per cent more than in 1921, and 1 per cent less than in 1920; the Canadian mills produced 9 per cent more than in 1924, 19 per cent more than in 1923, 44 per cent more than in 1922, 97 per cent more than in 1921, and 69 per cent more than in 1920.

The combined production of the United States and Canadian mills for the first seven months of 1925 was 5 per cent more than in 1924, 9 per cent over 1923, 24 per cent over 1922, 52 per cent over 1921, and 25 per cent over 1920. There was a production of 41,088 tons in Newfoundland and 7,434 tons in Mexico during the first seven months of 1925.

Kalbfleisch Corp. To Install New Rosin Size Works

A new rosin size plant is being installed by the Kalbfleisch Corporation at its Waterbury Works and will be ready for operation on September 1. This enlargement of the New England plant was made necessary by the increased business in this territory. Heretofore, the Erie, Pennsylvania Works supplied Rosin Size for the New England consuming trade.

C. H. Kent, who for about a year has been located at Springfield, Mass., and from that point has handled the Corporation's New England rosin size business, is moving his office on September 1 to the Waterbury plant and will thereby be better enabled to give personal attention to the requirements of the trade both as to quality of product and service.

The Waterbury Works are to be operated the same as the rosin size plants of the Corporation at Erie, Pa., and Kalamazoo, Mich., under the patents, formulae and methods of the Process Engineers, Inc., leading Sizing Engineers.

Bids For Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 19, 1925.—The Government Printing Office has received the following bids for 8,000 pounds of 21 x 32—16, No. 9 white manifold paper: R. P. Andrews Paper Company, at 34.24 cents per pound; Barton, Duer & Koch Paper Company, 34.25 cents; Dobler & Mudge, 34.2 cents; Old Dominion Paper Company, 35.99 cents; Southworth Company, 30 cents; Esleeck Manufacturing Company, 35 cents; and American Writing Paper Company, 34.85 cents.

The Government Printing Office will receive bids on August 21 for 14,500 pounds (500 reams) of 21 x 32—29, white bond paper.

Pulpwood Peeling Season Closes

The Thompson and Heyland Lumber Company, Toronto, who handle and export large quantities of pulpwood have purchased for delivery, during the coming season, over fifty thousand cords of sap peeled spruce in Northern Ontario. The peeling season is about over and the amount of wood taken out by the settlers and sap peeled is about the same as last year. The prices are easier, however, and quotations are about ten per cent less than at this time in 1924. It is believed that the market will pick up somewhat in the near future.

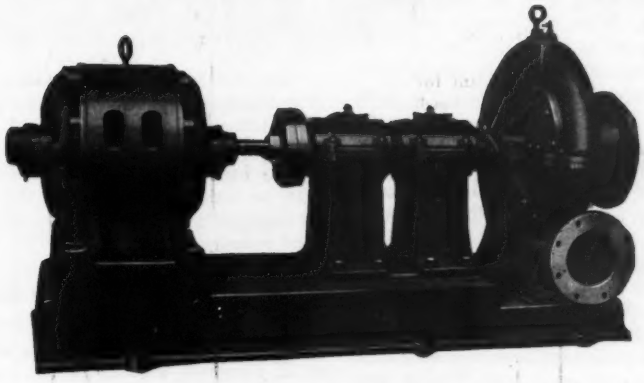
Increase Dues on Crown Land Pulpwood

WASHINGTON, D. C., August 19, 1925.—Consul General Foster of Ottawa reports that the Ontario government passed an Order-In-Council increasing Crown Land dues on timber and pulpwood. Dues upon spruce pulp are advanced from 80 cents to $1.40 per cord and upon balsam pulp from 40 cents to 70 cents per cord. Dues on other pulpwood remain unchanged at 40 cents. These new rates apply to current and future licenses or leases.

Receiver For Bear River Pulp Co.

HALIFAX, N. S., August 17, 1925.—Announcement has been made here that the Bear River Pulp Company has passed into the hands of the Eastern Trust Company, which was appointed interim receiver by the Supreme Court. Less than two years ago the company operating the plant went into the hands of receivers and was sold at auction. It was the largest single industry in Annapolis county, and had been operating intermittently for two years.

FREDERICK PUMPS



WHAT USERS SAY

Represents—Not guesses as to what pumps *will do*, but definite knowledge of what they *are doing*.

Following are some quotations:

"We have had two of these pumps in operation for about eighteen months pumping bleached and unbleached sulphite pulp at a consistency of from 3 to 3½ percent. We have had no occasion to open either pump during this period. The Pumps are built very sturdily and are reliable; and we find this type of pump is far superior to the type of pump built along lighter lines."

"We have a number of Frederick pumps for handling paper stock in the paper mill. They have given good results, and are very satisfactory. Two of the pumps are handling stock from five to seven percent consistency. They hold up very well under service and are a very sturdy product. We can recommend both Frederick pumps and Frederick service."

"We are getting good results from the various pumps of your make we have in service, and are well satisfied with same.

"We have just made requisition on our purchasing department for a 6" pump for which you will receive order within the next few days."

"We have been operating a centrifugal pump made by the Frederick Iron and Steel Company, Frederick, Maryland, in a satisfactory manner without any appreciable trouble. In fact, this pump has run along so smoothly that all we know is that it is there and pumps steadily and regularly."

All Pumps Referred to Above Are in Paper Mill Service

THE FREDERICK IRON AND STEEL COMPANY

FREDERICK, MARYLAND

In Canada—Dominion Engineering Works, Ltd., Lachine, Que.

Paper Demand Slow in Boston

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., August 17, 1925.—Paper dealers in general this week were forced to admit that business during the first two weeks in August reached the lowest level thus far this year. Despite all attempts at optimism various houses had the same report to make. A general survey showed that there was a dearth of orders in all branches.

Most of the merchants are pinning their hopes on good fall business but their foundation for such beliefs is surely not based on anything they see in sight just now. Enthusiasm that has marked the Boston trade for months is missing. Orders are few and far between. Inquiries continue to come in, to be sure, but dealers here refuse to accept this as an optimistic barometer any longer.

Just now it's a watchful waiting policy with the usual seasonal quietness in full charge of things. When the break is coming is problematical. One guess is as good as another, is the way one veteran salesman put it. This individual comes in contact with scores of traveling men in the field. "They all carry the same tale—no business," he said.

No. 2 Kraft was quoted this week at one-quarter of a cent advance with the general market in coarse paper holding firm. News board was quoted at $47, and Chip board at $45, with buyers not anxious to keep on hand more than one month's supply of stock.

The fine grade business continues fair and with some concrete evidence that business will pick up soon. The paper box houses report business far below normal. One well known manufacturer made it plain that this branch of the trade will have hard pulling for some time. "Some of the men in this business have forgotten that the war is over and as soon as they come down to earth and stop the so-called 'straw business' the better it will be for us all," he said.

He intimated that some of the paper box men were having hard sledding financially. Incidentally this is not confined to the paper box men. Collections are slow in all branches.

The rag stock business is very quiet, the mills refusing to buy, even though the price is exceptionally low at the present.

W. B. Stevenson, Vice President of Storrs, Bement, Inc., has just returned from his trip abroad well rested and ready for some good Fall business.

Wendell Brothers of Atlantic Avenue have opened a New York City office at 347 Fifth Avenue, with Percy Wendell, of Harvard football fame, in charge.

Several Boston paper men took an active part at the postal rate hearings held here this week by the congressional committee. Many of the dealers presented evidence concerning the increased overhead caused by the new rates.

Paper Men Interested In The South

ATLANTA, Ga., August 10, 1925.—That paper and pulpwood men throughout the North and East are planning to move South following the lead of the textile industry, and that in a very short time the center of this industry will be in the Southeast was the statement made here today by F. T. Newell, secretary of the Industrial bureau of the Atlanta Chamber of Commerce, following an extended tour including Cincinnati, Chicago, Detroit, Buffalo, Rochester, Utica, New York, and other cities in the North and East. He gave it as his opinion that in a few years many other industries would also move South because of superior conditions.

Among the conditions in the South particularly suited to the pulpwood industry, Mr. Newell stated that the following had been pointed out to him:

1. Closeness to raw materials.
2. Possibility of securing large domains.
3. Rapid growth of pine timber suited to the manufacture of pulpwood.
4. An abundant supply of hydro-electric power at reasonable rates for use.
5. A supply of native white labor not given to labor agitation and to strikes, and
6. Closeness to the seaboard for water transportation.

The only disadvantage was the presence in some states of laws unfavorable to the establishment of large firms and corporations, which in Mr. Newell's opinion, would eventually be overcome.

"Everywhere," said Mr. Newell, "I found manufacturers watching the South with an eye to moving there, and this was particularly true of the paper and pulpwood people. Faced with a possible boycott of pulpwood in Canada, where the American consumption of wood for paper is increasingly un-popular, and with a long and expensive ocean haul for woods from Europe, pulpwood manufacturers are coming more and more to believe that the solution of their troubles lies in the acquisition of cut-over land holdings in the South and the establishment of mills there.

"The lead that the textile industry has taken in coming South is certain to be followed in a few years by the paper and pulpwood industry, and the center of that industry will be in the Southeast in the next decade."

Other industries which Mr. Newell predicted would come South were the furniture industry and the clay products industry, which are expected to follow close upon the heels of the paper and pulpwood industry in the section.

Wolverine Paper Co. To Be Sold

KALAMAZOO, Mich., August 17, 1925.—Assets of the Wolverine Paper Company, Otsego, are to be disposed of according to Robert L. Campbell, attorney of this city representing the creditors of the company. At a recent session in the federal court in Grand Rapids, the concern was declared bankrupt and Charles E. Nelson, president of the MacSimBar Paper Company, was appointed trustee and authorized to continue operation of the plant for the present.

C. A. Fox of the Bryant Paper Company, George M. Gilkey of the Michigan Paper Company and Clarence A. Buskirk of the Rex Paper Company were appointed appraisers. When their report is ready, it is planned to sell the property.

"We hope to dispose of the mill as a going concern" said Mr. Campbell. "If not it will probably be scrapped."

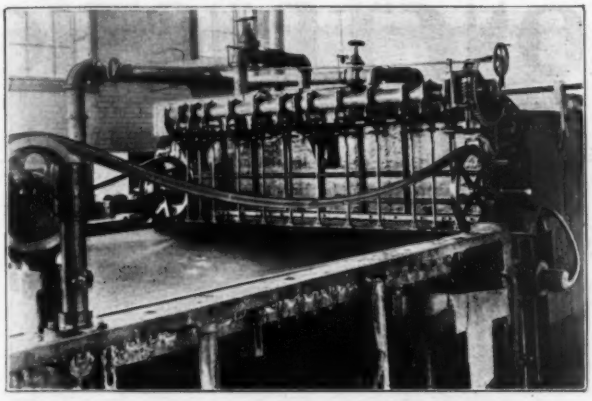
Kimberly Mill Claims Safety Record

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., August 17, 1925.—The Kimberly mill of the Kimberly-Clark Company lays claim to the world's record for safety, it having operated 110 consecutive days without a minute lost on account of accident. This announcement was made by the company recently and since then the plant has been keeping up the good record. Previous to this the Niagara, Wis., mill held claim to the safety record. Its record was 150 days without an accident and was for 625 men. Multiplying the number of men by the number of safe days, the total was 97,800 "man days" of safety. The Kimberly mill's record at the time of the announcement was 99,503 man days.

Southern Agents for Uehling Instruments

The Uehling Instrument Company, Paterson, N. J., has recently appointed two new southern agents to handle its line of CO_2 recorders and other power plant instruments, namely John C. Candler, 315 Glenn Building, Atlanta, Ga., to cover Georgia, Eastern Tennessee and the southern half of South Carolina, and Charles M. Setzer of Charlotte, N. C., to cover North Carolina and the northern half of South Carolina.



Precision In Making Paper

The Voith High Pressure Stock Inlet has applied precision to the art of paper making. With this machine you can accurately control the flow of the stock onto the paper machine. It is easy to make a sheet of uniform thickness across the entire width of the wire, avoiding even the thin edges next to the deckle and at the same time eliminate lumps and foam spots.

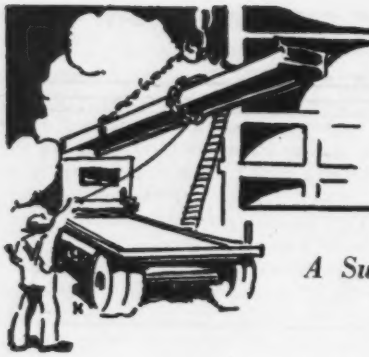
The stock stream can be regulated either as a whole across the full width of the sheet or locally at any point. Local adjustment can be made singly and exactly by means of small handwheels. A one motion full width adjustment over the sheet is quickly made by turning a single handwheel. These adjustments are simple and can be made while the machine is running and they enable the machine tender to produce a sheet of uniform thickness and substance, with a minimum of effort and without the use of troublesome makeshifts and old fashioned slices.

The Voith Inlet is doing this very thing for paper manufacturers throughout the United States. It is producing better paper, increasing production and lowering costs. We will be glad to send you a booklet giving full particulars. Write for it today.

VALLEY IRON WORKS CO.

APPLETON, WISCONSIN

New York Office: 350 Madison Ave.



CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Monroe Falls, Ohio—Preliminary plans are being considered by the Monroe Falls Paper Company for the rebuilding of the portion of its mill destroyed by fire, August 6, with loss reported at $100,000, including equipment and stock.

Pulaski, N. Y.—The Regal Paper Company has awarded a general contract to W. H. Wiler, Pulaski, for the erection of its proposed one-story mill addition, to be 140 x 160 feet, reported to cost in excess of $100,000, with equipment. Superstructure will soon begin.

St. Paul, Minn.—The Waldorf Paper Products Company, Myrtle and Pillsbury avenues, has work under way on the rebuilding of the portion of its plant recently destroyed by fire, to be one-story, fireproof, estimated to cost approximately $100,000. It is expected to install machinery at an early date. The Paul Steenberg Construction Company, Builders' Exchange Building, is the general contractor. H. A. Sullwold, 107 East Third street, is architect.

Otsego, Mich.—The Allied Paper Mills have work under way on a new steam power house at their local plant, known as the Bardeen Division, and will soon proceed with the equipment installation.

Norwood, Mass.—Bird & Son, Inc., East Walpole, Mass., manufacturer of paper roofing and kindred products, has asked bids for a proposed addition to its local plant, to be used primarily for storage and distributing service. It is expected to begin work at an early date. Monks & Johnson, 99 Chauncey street, Boston, Mass., are architects and engneers.

Salem, Ore.—The Western Paper Converting Company has closed negotiations for a local site and plans the immediate erection of a new mill, to be one-story, 110 x 200 feet, estimated to cost close to $50,000. A list of equipment to be installed will soon be arranged.

Rockford, Ill.—The Rockford Scrap Iron and Paper Company has completed plans and will proceed with the erection of a new one-story and basement building, 96 x 100 feet, to be used for storage and distributing service. It is estimated to cost about $30,000. Jesse A. Barloga, Trust Building, Rockford, is architect.

Indianapolis, Ind.—The Beverridge Paper Company has filed plans for the construction of a new one-story building at 717 West Washington street, to be used for garage service.

Philadelphia, Pa.—The Keystone Paper Mills have disposed of a tract of about 6 acres of land on Mill Road and Cobbs Creek, Upper Darby Township, to the Philadelphia Rapid Transit Company, for a consideration stated at $175,000. The purchasing company will use it for expansion in its terminal facilities.

New York, N. Y.—The International Paper Company, 100 East Forty-second street, has authorized plans for the construction of a new newsprint mill on the Gatineau River, near Ottawa, Ont., to consist of a number of units, with machine shop and accessory structures, estimated to cost in excess of $5,000,000, with equipment. The company has work in progress on extensions at its plant at Three Rivers, Que., to include facilities for the installation of four additional paper-making machines, each with a capacity of about 90 tons per day; two of the machines are expected to be set up, ready for service by the close of the year, with the other two to be completed in 1926. The expansion will develop a total output at the plant of 700 tons of newsprint per day.

Fort William, Ont.—The Great Lakes Paper Company is completing plans and expects to begin work at an early date on a new paper mill, adjoining its pulp mill. The project will include the erection of several units, with mechanical shops and power station, estimated to cost close to $2,000,000. It is proposed to have the mill ready for production late in the coming year.

Quebec, Que.—The Angelo Canadian Pulp and Paper Company has plans in progress for the erection of a new mill on Limoilon street, designed as a four-unit structure, with power plant, machine shop, pumping station and accessory departments. The new mill is reported to cost close to $10,000,000, with machinery. George F. Hardy, 309 Broadway, New York, is architect and engineer.

Windsor Mills, Que.—The Canada Paper Company, Montreal, is pushing construction on its new local pulp mill and proposes to have the unit completed and ready for service in the near future. The plant will produce pulp on a modified soda system, and is expected to bring about marked efficiency in production. The cost is reported in excess of $500,000.

New Companies

Haverhill, Mass.—The H. L. Fox Box Company has been incorporated with a capital of $15,000, to manufacture paper boxes and containers. Hazen L. Foss, 830 Main street, Haverhill, is president and treasurer.

New York, N. Y.—The Perfect Box and Novelty Company has been incorporated with a capital of $10,000, to manufacture paper boxes and specialties. The incorporators are P. A. Grygill, W. Newman and M. Cohen. The company is represented by C. L. Grad, 1431 Broadway, New York.

Lake Wales, Fla.—The Bucher Flexible Ventilating Fiber Box and Crate Company has been incorporated with a capital of $200,000, to manufacture fiber boxes and kindred products. R. Bucher is president, and Charles M. Quinn, secretary, both of Lake Wales.

New York, N. Y.—The Singer Box Company has been incorporated with a capital of $20,000, to manufacture folding paper boxes and containers. The incorporators are J. Bobley, M. Loeb and G. S. Gottesman. The company is represented by the present Singer Box Company, 110 West 34th street, which it will succeed.

New York, N. Y.—The Peerless Wall Paper Compaany has been incorporated with a capital of $25,000, to manufacture and deal in wall papers. The incorporators are R. E. Thibaut and J. J. Carroll. The company is represented by S. S. Menken, 54 William street, New York.

The A. P. W. Paper Co., Albany.

NEW YORK

"The Empire State," proud of its merited reputation for big business, uses many Dilts Beating Engines. In this State they are built, in this State they are operated, and Everywhere they are appreciated.

In "The Empire State" as elsewhere, "the paper is made in the Beaters."

The Dilts approved NEW TYPE Beating Engine, first built in 1924, immediately achieved success. It is now widely and most favorably known and is accomplishing remarkable results wherever used.

Fast Circulating, Heavy Furnish, Rapid Mixing and Beating, Quick Dumping, and *no increase in power consumption.*

You should send for list of users, names of recent purchasers, and list of unshipped contracts. You will be interested in the Dilts approved NEW TYPE Beating Engine.

Dilts

MACHINE WORKS, Inc. FULTON, N.Y.

EXPORT OFFICE ~15 PARK ROW~ NEW YORK CITY

New York Trade Jottings

The Arkadia Paper Company has leased space at 49 Great Jones street.

* * *

George D. Bearce, engineer of the News Print Service Bureau, who has been living in Brooklyn, has moved to Yonkers, of which city he was a former resident.

* * *

The Kent Paper Company, Inc., envelope manufacturers and paper converters, of 329 East 29th street, announce the election of Charles G. Wilkinson as president, John G. Voltmann as vice-president and John A. Hopper as secretary and treasurer.

* * *

The report of the United Paperboard Company for the year ended May 31, 1925, shows a net income of $241,835 after taxes, depreciation, etc., equivalent after preferred dividends to $1.35 a share earned on $12,000,000 common stock. This compares with $123,420 or .43 a share on $10,055,000 common in previous year. The total surplus on May 31 was $749,302.

Wisconsin Paper Makers Want Dam Returned

APPLETON, Wis., August 17, 1925.—Waterpower users consisting for the greater part of paper mills here are fighting to retain possession of a needle dam that has furnished power for the paper industry for nearly 50 years.

A suit has been started and will be argued before the state supreme court this fall in order to compel the state railroad commission to issue the waterpower owners a permit to construct a new dam. The commission has refused to issue the permit, and there is danger that the dam will revert to the state under the so-called "recapture clause," which was enacted two years ago.

Under this clause of the statutes, the state reserves the right to confiscate dams and waterpower after the end of 30 years, the purchase price to be fixed on the basis of present-day valuation. The suit will test the validity of this act.

The power users contemplate building a new dam at a cost of approximately $50,000. This decision was made following a request of the war department to raise the dam to conform with the raising of government locks and canals on the Fox river. In applying to the government for a permit, it was referred to the state as the one with proper authority to issue such permits. This the railroad commission, however, refused to grant.

The dam is one of three in Appleton, the other two being government dams, and was constructed about 48 years ago as a result of popular subscription. The original permit was issued to the Appleton Waterpower Company which is no longer in existence. Present users include the Fox River Paper Company, the Patten Paper Company, the Appleton Machine company and several other establishments.

It is argued by power users that it is a poor kind of law that permits communities to build dams and develop waterpower only to be turned over to the state after 30 years and possibly deteriorate for want of upkeep.

New York Traffic Association Does Good Work

[FROM OUR REGULAR CORRESPONDENT]

GLEN FALLS, N. Y., August 17, 1925.—The Northeastern New York Traffic Association, formed recently in this city, with practically all of the pulp and paper concerns hereabouts as members, is doing good work in the interests of the membership. The association was represented by several delegates at the recent hearings in Washington before the Interstate Commerce Commission on the proposal of the railroads for increasing freight rates in this territory. The association, while formed, primarily, to combat the efforts of railroads to boost freight rates, will, it is understood, be made a permanent organization and will look after the interests of its members in all matter pertaining to traffic.

Among the members of the association in this section are Finch, Pruyn & Co., this city, Tait Paper & Color Industries, also of this city; Standard Wall Paper Company, of Hudson Falls; Union Bag and Paper Corporation, Hudson Falls; Sandy Hill Iron and Brass Works, Hudson Falls; Kenyon Lumber Company, Hudson Falls; Schroon River Pulp and Paper Company, of Warrensburg; Lowe Paper Company, Rock City Falls; Phoenix Paper Company, Thomson; Stevens & Thomson Paper Company, of North Hoosack; Plattsburg Wall Paper Company, and the Underwood Paper Mills, of Plattsburg.

KENNEDY, COHOES, N. Y.

Paper Pulp From Bamboo

In a report from Simla says "Mr. Pearson (Forest Economist), in a preface to an official report by Mr. Raitt, paper-making expert, states that experiments with the special plant of the Imperial Forest Research Institute at Dehra Dun under commercial conditions confirm the laboratory results. This, he declares, means a revolution in the methods of dealing with grass and puts the utilization of bamboo for paper pulp on an absolutely sound foundation.

"The Indian Tariff Board, in a report the substance of which was sent by our Simla Correspondent on July 31 and published in *The Times* of August 1, state that it has been proved possible to make excellent paper from bamboo and recommend that the Government should provide capital to enable the India Paper Pulp Company to increase its output from 2,500 tons to 5,000 tons yearly. The Board also suggest an investigation into the possibility of creating an extensive manufacture of paper pulp from bamboo."

Vicksburg May Have Coating Mill

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., August 17, 1925.—Vicksburg, in the Kalamazoo river valley district, 15 miles south of Kalamazoo, is much interested in prospects for the location of a new coating mill in that city. E. H. Hacking, former secretary of the Rex Paper Company, has presented his plans to the Vicksburg Commercial Club. As a result a committee consisting of Charles F. Brown, C. W. M. Bonham, O. W. Weinland, Dr. C. H. McKain and John H. Rayner has been named to investigate the project from all angles and report back at the next meeting. Vicksburg is already home of the Lee Paper Company, a concern devoted to the manufacture of writing, bond and ledger papers.

English China Clay For Michigan Mills

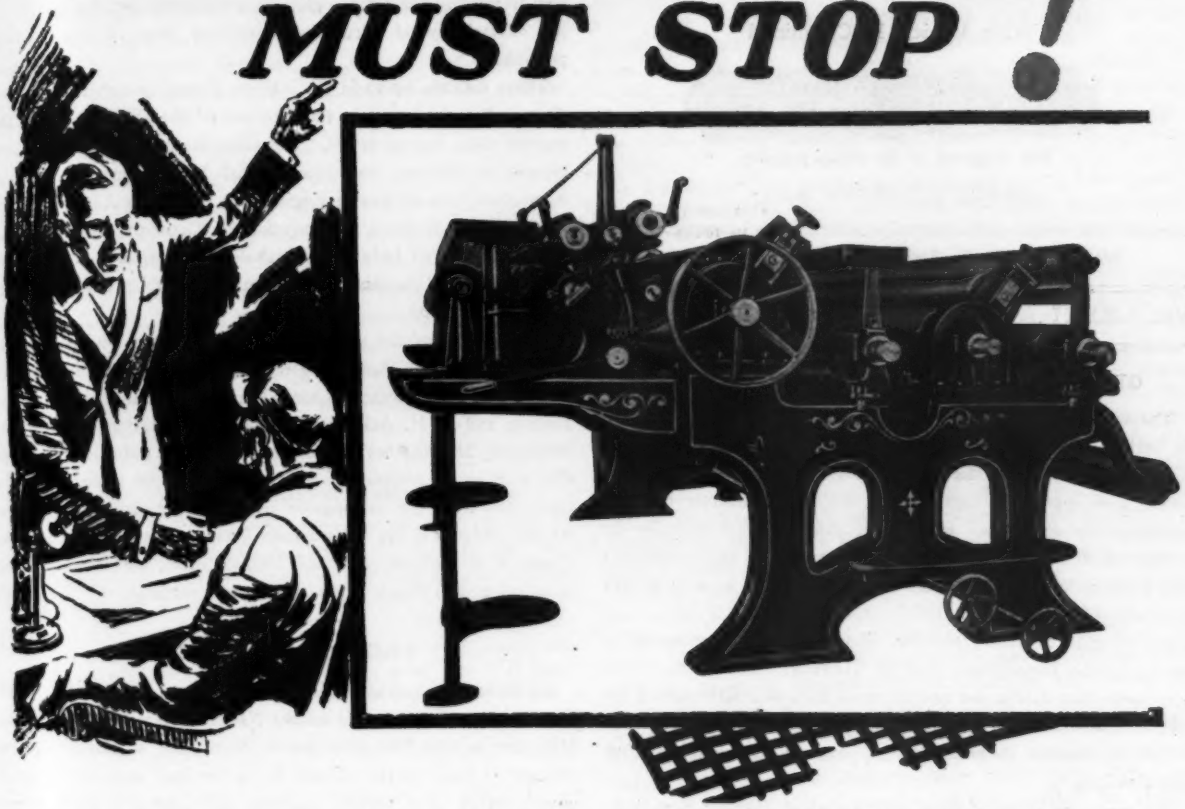
KALAMAZOO, Mich., August 17, 1925.—The steamship "Perje" has just unloaded at Michigan City approximately 2,000 tons of English china clay, consigned to coating mills in the United States. Ten carloads were delivered to the Watervleit Paper Company the past week. The balance of the cargo goes to other mills in the Kalamazoo valley district. Local mills consume 4,000 tons of English clay annually.

Earlville Bag Co. In Model Factory

EARLVILLE, N. Y., August 11, 1925.—To meet increasing business, the Earlville Paper Box Company is now occupying its large, new building, which is a model factory in every respect.

The latest equipment has been installed, nearly doubling the capacity of the plant. Fine new offices have been provided.

WASTE! MUST STOP!



MANY a mill is constantly confronted with the bugbear of high costs resulting from "broke" losses, time out, repairs and unproductive hours. Waste, waste, waste! No wonder that executives from every field have joined together to stop these avoidable losses.

The solution often lies in obsolete equipment. The railroads saved upwards of thirty million dollars last year by discarding old-type locomotives for modern ones. Many board mills have solved the problem by adopting the modern **"Beloit" Cutter with Slitter Attachment**—a mechanism that needs but the swing of a lever to change widths, thus saving huge quantities of "broke" with such change in their slitters.

Five orders from one mill alone, batteries of three to four in many others, and single units in scores of mills prove the efficiency of the "Beloit."

It will pay you to get the facts. Ask for Special Bulletin.

The BELOIT Cutter

WITH SLITTER ATTACHMENT

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The Magazine of the Paper Industry
HENRY J. BERGER, Editor

Member A. B. C. Audit Bureau of Circulations

Vol. LXXXI New York, August 20, 1925 No. 8

GROWING INTEREST IN SIMPLIFICATION

The war on waste in American industry which is being waged by various industial groups in cooperation with the Division of Simplified Practice of the Department of Commerce, was continued with increasing vigor during the second quarter of 1925, stimulated by reports of millions of dollars saved annually by groups which have already simplified the variety of commodities they produce, distribute or use. Estimated savings of nine groups total $293,600,000 annually.

Reporting to Secretary Hoover, who instituted this cooperative service of the Department, Ray M. Hudson, Chief of the Division, states that during the quarter more than 40 conferences were held in which groups either adopted simplified practice programs or met to initiate simplification projects or to revise existing simplifications.

The most important of these saw American Lumber Standards reaffirmed and the 60% reduction in soft wood yard lumber items,—adopted a year ago—extended to timber and other soft wood items. Also in the wood-using field, and of importance to the home-builder, steps were taken by the sash, door and millwork industry of the Northeast to make sweeping reductions in the variety of these commodities. In this direction supplementary action was taken to promote a single nation-wide set of standards.

Reduction from 6,280 to 4,700 varieties and sizes, and the establishment of standards of cubical contents of grocery bags,—with an estimated saving of more than $600,000 a year—was another conference achievement.

As indicative of the growing interest on the part of manufacturers in the possible benefits from simplification,—the report points out, the work of the Division has been pledged the support of the Associated Industries of Massachusetts, the Illinois Manufacturers Association, the Wisconsin Manufacturers Association and the California Manufacturers Association. More than 7,000 masters of Grange organizations and 1,673 commercial and consumer cooperative associations had their attention brought to possible gains for their members. Educators, too, are finding the work of the Division instructive, the report shows, for 40 deans of Y. M. C. A. schools of commerce and business administration have begun studies of the practical results obtained by simplification in commerce and industry.

Increased emphasis was laid on the need of the Federal Government taking advantage of any possible economies through simplified practice, and Chief Coordinator, Brig. Gen. H. C. Smithers has brought to the attention of 91 government purchasing officers the advisability of purchasing simplified lines of goods where possible.

There was no let-up in the interest shown by foreign organizations and governments in the progress of the Division during the quarter, the report states. Inquiries were received from the League of Nations, the International Labor Bureau, from the Australian Commonwealth Engineering Standards Association, the National standardizing organization of Germany, from the National Institute of Industrial Psychology of England, from organizations in New Zealand, the Argentine Republic, Scotland, Norway and Sweden.

Enlargement of the advisory committee of the Division, by the inclusion of L. W. Wallace of the American Engineering Council, Brig. Gen. H. C. Smithers, Chief Coordinator of the Bureau of the Budget, and B. H. Ackles, president of the National Supply and Machinery Distributors' Association, the report indicates, has made this body more completely representative of the elements chiefly concerned with the elimination of waste through simplification. At the same time the close liaison between the Division and the Chamber of Commerce of the United States, and many leading technical and scientific organizations was maintained.

THE USES OF CREDIT

We endeavor to define credit in many ways, according to J. H. Tregoe, executive manager of the National Association of Credit Men, but usually the definition is descriptive of the mechanics, but not of credit itself. Credit is, in the final analysis, a human power, based upon certain elements that inspire confidence and considered safely exchangable for commodities or money.

Every human power is potentially constructive or destructive. With a hand we can give a fraternal grasp, or deal a dastardly blow. We can conceive good for our fellow men or insidious schemes for their hurt. So it is with credit—potentially either destructive or constructive. What may seem entirely legitimate uses of credit may at last prove a destructive use of the power.

Because we enjoy the confidence that gives currency to our credit is no reason why its currency should be debased by unwise uses. Credit must be redeemed by eventually giving value for value obtained; and the extent to which this redemption is carried on increases the confidence that makes the credit current.

Using this personal power to obtain goods for consumption, goods that do not enter the ordinary channels of trade, or are not used for further production, is not constructive. The goods bought on credit terms or their equivalent should always be a guarantee of the credit's redemption, for otherwise the redemption of the credit might be defeated irrespective of the good intentions of the buyer.

Credit, to render the best service, and to save dangerous situa-

tions, should be used constructively, and where goods are needed for consumption purposes should be sparingly used.

These truths regarding credit, the most important element in our business, make me fearful of the present tendency to overstrain the personal credit power by urging the purchase of goods that are merely for personal gratification and have nothing at all to do with our productive processes.

I am exceedingly fearful of present tendencies to promote too far the sale of goods on instalment terms. These goods are generally for consumption purposes, and the credit on which the exchange is based cannot as a general rule be classed as constructive.

The day of reckoning comes sooner or later, if credit is not wisely used. Business cannot be eternally stimulated by the inflation of credit, and there may be inflation in any transaction where the goods are consumed before the credit is extinguished. A danger signal is needed just now, because the effort to stimulate the sale of some commodities on long credit terms is making a false foundation that will undoubtedly crash through when the load becomes too heavy.

Nothing in the long run will be more stimulating to sound business and will better keep us from embarrassing situations than the constructive uses of credit.

Globe Trotting Paper Maker Meets Old Friend

Portland, Oregon, August 10, 1925.

EDITOR PAPER TRADE JOURNAL:—Way out here in the free open Western country, I am writing a few lines to give you just a little news from a former paper maker. Out here, in the little town of Salem, Ore., much to my surprise, I met an old friend of mine whom I knew back in the days of old when paper-making in the Fox River Valley was more interesting than it is now.

This old friend is Tom B. Armstrong. He has been holding a superintendent's job for the Oregon Pulp and Paper Company of Salem, one of the best and most up-to-date small mills in the country.

Tom is one of the best old paper-makers of the day. He has been in the game since he was a boy and is known throughout the country by many of the leading paper-makers. He is still in the running although he has had many knocks in the paper making game as well as in life in general. He is just recovering from an operation that not more than one man in a hundred could have gone through but he is now doing well and is on the road to good health again. After ten weeks of untold misery and agony he is still full of pluck and has convinced me more than ever that there is truth in the saying, "you can't keep a good man down."

Respectfully yours,

A GLOBE-TROTTING PAPER-MAKER,

Dale Arlington.

Great Northern Paper Employees Have Outing

BANGOR, Me., August 11, 1925.—The eleventh annual outing of the Great Northern Club, composed of employes of the Great Northern Paper Company in eastern Maine, was attended by 200 members of the organization at Camp Benson Saturday. Ball games, foot and potato races, tug of war and other events were enjoyed by the good natured throng. The committee on arrangements consisted of Ross C. Bamford, president; E. Earl Brown, John McVey, D. J. Leen and H. L. Miller.

E. J. Harpe May Not Be Eligible for President

ALBANY, N. Y., August 17, 1925.—An unusual situation developed during the past week in paper making union affairs when it was announced by officers of the International Brotherhood of Paper Makers that Edward J. Harpe, of Rumford, Me., nominated by the Carey faction to appease M. H. Parker, present head of the Brotherhood, for the presidency of the union, had failed to qualify as a candidate. Mr. Harpe, according to the announcement, is nineteen months in arrears in his dues. The announcement from headquarters that Mr. Harpe failed to meet certain provisions in the by-laws of the organization and could not become a candidate for the presidency, came like a bombshell to the supporters of former President Jeremiah Carey. Just what the outcome will be, it is impossible to tell but it is almost certain to increase the bitterness now existing between the opposing factions.

It was learned at union headquarters that several other candidates nominated for office also failed to qualify as candidates because of failure to pay dues. These candidates are on both tickets.

Jeremiah T. Carey, former president and leader of the Carey faction, declared that any attempt on the part of President M. H. Parker and his associates to disqualify Mr. Harpe as the insurgent candidate for president would bring about a reaction that would elect the entire insurgent ticket from Mr. Harpe down. Mr. Carey stated that Mr. Harpe would be in the running despite any assertions from Brotherhood headquarters. The former president said that Mr. Harpe had been involved in the International Paper Company strike that started in May 1921 and was out of work until last summer when he found employment in the mill of the Oxford Paper Company. He stated further that Mr. Harpe could not be disqualified for non-payment of dues because he had been without funds and was entitled to "out-of-work" stamps which permit a union member, out of work, to retain his good standing.

The latest development in union politics is expected to increase the bitterness of the coming election of officers which promises to be the stormiest in the history of the union. Mr. Carey is credited with the statement that a certain brotherhood official paid little or no money in dues while the I. P. strike was in progress from 1921 on and promised to place these facts before the local unions when the proper time comes. Mr. Carey said that action would be started at once to establish Mr. Harpe's qualifications.

W. C. Hamilton & Sons To Electrify Plant

MIQUON, Pa., August 17, 1925.—W. C. Hamilton & Sons, Miquon, Pa., manufacturers of paper for ledgers, wedding announcements and personal stationery, have decided to electrify their plant. Four steam-driven machines are now in use at Miquon, driven through a complicated system of line shafting.

There will be installed, probably by this fall, a 1500-kilowatt, non-condensing, turbine-driven generator unit which will supply power to four motor-driven mills. The non-condensing type of turbine was selected inasmuch as the mill utilized a large quantity of process steam.

All the electrical equipment will be of General Electric manufacture. Power will be distributed throughout the mill at 480 volts. The paper machines will be operated by the single-motor type of electric drive, using four 80-horsepower, adjustable speed, direct current motors. The direct current will be obtained from four 75- kilowatt motor generators, one located at each machine.

The Jordans had previously been belt driven from the same system of line shafts which drove the paper machines. When the new installation is completed, each Jordan will be driven by an individual 150-horsepower, direct connected, synchronous motor.

Important Information Every Paper Mill Executive Should Have for Ready Reference

For the information of Factory Executives, Engineers, Managers and Superintendents, Skinner Bros. Mfg. Co., Inc., has issued a new catalog concerning better Heating and Air Conditioning of Plants, Mills, Factories and Shops of every size and type. The catalog is available now.

Skinner Bros. Engineers built this catalog to place before Industrial Executives the latest improved methods of heating and air conditioning their manufactories and to inform them of the equipment that is reducing overhead by cutting down production costs.

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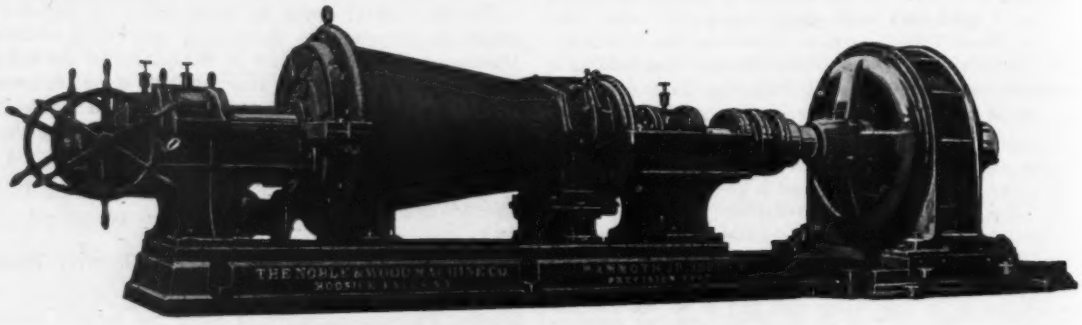

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Aside from all other considerations, the Jordan plug being held perfectly central with relation to the shell when Anti-Friction Bearings are used, gives uniform wear on bars, and uniformly treated stock over the entire area of the bars.

This is being demonstrated daily in mills using our Precision Jordans and in mills using our standard Jordans equipped with Anti-Friction Bearings

Let us tell you about it.

THE NOBLE & WOOD MACHINE CO., Hoosick Falls, N. Y., U. S. A.

Section of the
Technical Association of the Pulp and Paper Industry
AN ORGANIZATION FOR THE ENCOURAGEMENT OF ORIGINAL INVESTIGATION AND RESEARCH WORK IN MILL ENGINEERING AND THE CHEMISTRY OF PAPER, CELLULOSE AND PAPER-MAKING FIBERS GENERALLY; IT AIMS TO PROVIDE MEANS FOR THE INTERCHANGE OF IDEAS AMONG ITS MEMBERS IN ORDER THAT PROCESSES OF MANUFACTURE MAY BE MADE MORE EFFICIENT AND IMPROVED ALONG TECHNICAL LINES.
Conducted by W.G. MacNAUGHTON, Secretary

The Action of Aqueous Sulphurous Acid on Lignocellulose. II.*

By C. F. Cross and A. Engelstad

In a previous paper[1] we have recorded the results of a systematic re-investigation of the interactions of sulphurous acid—H_2SO_3 in aqueous solution of 6-8% SO_2—and the lignone complex, which show that the main reaction is that of direct sulphonation, and takes place in the range of temperature 95°-100°. These conditions of treatment of wood substance, the most highly lignified of the lignocelluloses, determine a complete resolution of the wood structures to pulp, and in the case of the coniferous woods the values of pulp and soluble by-product are such as to complete an industrial balance sheet.

Bisulphite a Compromise

Together with the results obtained by Dorée and Hall, and simultaneously published in caharacterising the soluble by-products, we have the basis of a critical revision of the technology of the "bisulphite" process, so called. In effect it is a sulphurous acid process: the bisulphite variation represents a compromise: the reduced percentage of sulphur dioxide is a simplification of the process in respect of apparatus and engineering, and the compensating increase of temperature, in the range 130°—150° involves only the increased cost on the other side. The factor of added base—magnesium, calcium, or sodium oxide—is not, as has been held by technologists, of determining value: the bisulphite as such is not a condition of the disintegration or pulping process; it is a diluent of the main reaction; on the other hand it inhibits the effects of sulphuric acid originally formed in the preparation of the liquor and afterwards in the digestion process, and also by combining with the lignosulphonic acids produced in the digestion, restrains or inhibits the secondary changes to which this acid complex is liable.

On *a priori* grounds the only positive contribution of these bases to the process would be that of attacking an acid group of the lignone complex.

The evidence for the presence of a constituent carboxylic group, either as such or in lactone or coumarone form, is the appearance of acetic acid as a product of simple hydrolytic resolution of the lignocelluloses. The conditions of its formation are such that observers (Tollens and others) have not hesitated to infer the presence of an acetic ester group in the lignone complex (we have not been able to accept this conclusion, preferring rather the alternative form of an inner anhydride). But in either case, such group would not take part in the ring structure of the lignone complex, and a reaction with basic groups would not be a determining factor of the breakdown of the mixed complex (lignocellulose) to pulp.

We have given weight, however, to those considerations in two series of experimental digestions in which these bases—calcium, magnesium, and sodium oxides—have been added to the sulphurous acid in calculated and equivalent proportions.

Before describing these we have to deal with a new factor which has been introduced and carefully studied comparatively with the above, and that is ammonia.

Effect of Ammonia Studied

As we have shown in our previous paper, the treatment, with sulphurous acid (6—8% SO_2), whilst it effects a complete resolution to a paper making pulp, reaches a limit in respect of resolving the fibrous lignocellulose: that is the massive wood is fully resolved to component fibers (tracheids), but these fibers retain residues of lignone, such that their final elimination from the cellulose involves a large expenditure of chlorine or alternatively of hypochlorite. It was important from the industrial point of view to introduce a new factor of reaction calculated to act as auxiliary to the attack of the sulphurous acid and also to antagonise any tendency to reversal of the process either in the solution or within the fibre substance. This tendency had been evident throughout the experiments described in our previous paper: and it was inferred that the difficulty could only be assigned to the reactivity of CO groups—ketonic or aldehydic: and hence that the introduction of compounds calculated to react with such groups would contribute the desideratum, whether of positive or corrective function.

The results obtained by the use of ammonia in small percentage in the sulphurous acid liquor are very striking and the main subject of the present communication. These results are, in effect, a complete resolution of the lignocellulose, *i.e.*, to a cellulose with only residues of lignone, a cellulose of exceptional color or freedom from color, and likewise a by-product liquor of light color or freedom from discoloration. As

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* J. Soc. Ind. 44.270 (June 5, 1925)
[1] The Action of Aqueous Sulphurous Acid on Lignocellulose I—J. Soc. Chem. Ind. 43. 253 T (1924) Paper, Aug. 21, 1924

in introducing this subject we spoke of compounds which react specifically with CO groups, we may state at once that those which have the more pronounced reactivity, with elimination of H_2O, such as aniline and phenylhydrazine, produce striking results in the contrary direction, entirely arresting the disintegrating or pulping attack of sulphurous acid, even though the acid is used in very large excess, in fact undiminished excess, beyond the equivalent combining.

Of the very large number of digestions carried out on every scale from 2 kg. of wood to 300—15,000 kg. of raw material, we select for record those which establish the main points in the technology of the matter.

Although a specific action and function of the ammonia was evident in the earliest results and throughout, on the basis of the accumulated experience it was necessary to make quantitative statistical experiments under two sets of conditions:

(1) With sulphurous acid (SO_2Aq) in the higher proportions (7.5—8.5% SO_2) required for a sulphurous acid process as such, *i.e.*, the SO_2 largely predominating, and therefore requiring the lower range of temperature 95°—110°.

(2) With sulphurous acid (total SO_2) as in the bisulphite processes, *i.e.*, 4—5% SO_2 but, on the other hand at the low range of temperature 95°—110° as in (1).

In these series the ammonia was used in mean proportion between the percentage previously ascertained to give exceptional results, viz., 0.5% NH_3, and the minimum required to give the substantial improvement in result beyond that obtained with the sulphurous acid alone. This minimum was observed at 0.1% NH_3.

In comparative experiments the two series comprised digestions in which ammonia, calcium, magnesium, and sodium oxides were employed in proportions of their equivalents, all other conditions of treatment being kept rigorously constant.

Details of Method and Technique

The following brief details of method and technique are necessary to explain the statement of results. The digester used was of 11 litres capacity and heated by external resistance coils. At the conclusion of an operation the excess of sulphur dioxide is blown off through cooled water. Opening at atmospheric pressure the contents are treated to obtain quantitive statistics. The liquor drained from the pulp is bottled off for the determination of by-products.

The pulp is thrown on to a large machine wire sieve and washed with water under sufficient pressure to break down to fiber; the residues resisting are the "unboiled chips." Both are weighed, the pulp after pressing to 50% moisture, the residues after draining from adherent water. A weighed quantity (uniform sample) of each is treated by the chlorination process for separating "pure cellulose"; incidentally the hydrogen chloride formed is determined as a measure of residual lignone. Equal quantities of each are weighed and dried to determine total dry fibrous matter in the original. The original washed pulp is also examined for composition in terms of *a*-, *B*-, and *y*-cellulose by standard method (17.5% NaOH).

Series I.—In all cases 1800 g. of air-dry prepared chips (equal to 1531.8 g. of dry wood substance—1596.7 g. in Experiment B) were heated with 10 litres of digestion liquor (8.53 g. SO^2 per 100 c.c.) for three hours at 100°, and kept for 24 hours at that temperature (pressure 6.9 kg./cm.^{2}).

In Experiment A the result, *qua* pulping effect, was complete, the unresolved residues being less than 1 % of the original. In B the undercooked residue amounted to 13.1% of the total pulp, or 6.2% of the original wood. In C again the undercooked residues were in large proportion—10% of the total pulp mixture.

Experiment With addition of	A 0.25% NH_3	B. 0.412% CaO.	C. 0.589% NaOH
Pulp washed and screened	713.6 g	668.7 g	716.3 g.
Undercooked residue	13.4	101.3	80.1
	727.0	770.0	796.4
By-product in solution (net)	794.3	835.0	835.3
Total pulp (% on wood)	47.4%	50.7%	51.1%
by-product (% on wood)	51.8%	52.3%	53.5%
Cellulose yield and composition:			
HCL formed	2.16%	1.9%	2.11%
Pure cellulose (% of pulp)	95.6%	94.0%	97.4%
a-Cellulose	88.2%	91.3%	89.2%
b- "	2.13%	1.58%	1.73%
y- "	9.67%	7.12%	9.07%

Experiment D.—With the addition of 1.37% of aniline.—As anticipated, the specific action in respect of resolution of wood substance was entirely arrested. On opening the digester the chips were found to be black in colour and structurally very little attacked. It was necessary to make this experiment as a contrast of two anines.

Ammonia would attach itself to carbonyl groups as the hydrate molecular compound, whereas aniline would give the full reaction with elimination of H_2O.

The results with the addition of phenylhydrazine were still more pronounced as regards arresting the specific effect.

It will be noted in the above series that the sulphurous acid was used in predominating excess such as, very obviously, to maintain the characteristics of a sulphurous acid process. Under these conditions the ammonia shows its special reactivity, and is in complete contrast *qua* its reactivity to the calcium and magnesium hydroxides as used in the bisulphite processes.

As stated, these prove to be dilutents of the main reaction, but from the relatively large percentage of undercooked residues it will be seen that they produce some effect other than that of merely combining with and therefore diluting the reactions of the sulphurous acid.

Having obtained results under these conditions it was important to study the comparative effects of these bases under the main condition obtaining in the bisulphite process, that is to say, with a total sulphurous acid strength of 5% SO_2. The proportion of bases was again the equivalent of 0.25% of ammonia, and for the reasons previously given.

Series II

The conditions of digestion were similar, viz., 1800 g. of air-dry prepared chips, 10 litres of the aqueous acid at 5% SO_2, heated during three hours to 110°, and kept for 24 hours at this temperature.

In this series the yields only of pulp and cellulose were determined:—

Experiment With addition of	A. 0.25 g. NH_3 per 100 c.c.	B. CaOas $CaSO_3$, $2H_2O$, 114.7 g.	C. MgO, 29.6 g.	D. as Na_2SO_3, $7H_2O$, 185.5 g.
Pulp washed and screened	658 g.	501.2 g.	418.1 g.	699.8 g.
Undercooked residues	17.8	157.5	295.4	78.3
Pulp % on orig. wood	48.2%	35.1%	30.6%	49.7%
Residue "	1.3%	9.65%	21.6%	5.2%
HCL formed	2.83%	3.73%	9.77%	3.62%
Pure cellulose	88.0%	88.6%	83.97%	92.8%
a-Cellulose	88.14%	87.73%	88.27%	86.9%
b- "	1.78%	1.36%	2.07%	1.18%
y- "	10.08%	11.01%	9.69%	11.91%

Although the conditions in the above series are not those of our particular process, but were chosen to represent the conditions as regards total SO_2 of the bisulphite processes, the contrast of effect is still more striking. In the case of the ammonia the pulping was quite far advanced even with this low percentage of sulphurous acid; but contrariwise the calcium and magnesium of the standard bisulphite processes give a contrast of effect which is extreme.

This contrast is manifest in the annexed table:—

Reagent added.	Unresolved "chips" % of original wood.
NH_4OH	1.30
Na_2O	5.20
CaO	9.65
MgO	21.60

The cellulose constants of the pulps, separated as pulp in both series, show only slight variations in conformity with the treatment affecting the main condition of this resistant residue.

Reviewing this experimental evidence, it is clear that we have to assign to ammonia the specific reactivity with the condensed lignone complex, and from the observations of processes and results the suggestion is obvious that the specific effect may in part be of catalytic order, and this point will be dealt with on evidence by Dorée and Hall in the communication which follows this. But as in this communication we are rather dealing with the technology of the matter, it will be of interest to give some record of the observations of the mill manager accustomed to working the bisulphite process.

He writes as follows:—

The digestion is carried out on the full factory scale as follows:—We first heat to 110° C., using direct steam, and so regulated that it takes five hours to reach this temperature. The pressure is maintained at six atmospheres by blowing off from the valves, as pressure increases by introducing steam. The digester is now left to stand and the progress of the cook is observed in the usual way by drawing samples of liquor and pulp for examination in the laboratory.

After about twenty hours' further digestion as above, the pulp is fully digested to the point of easy bleaching quality.

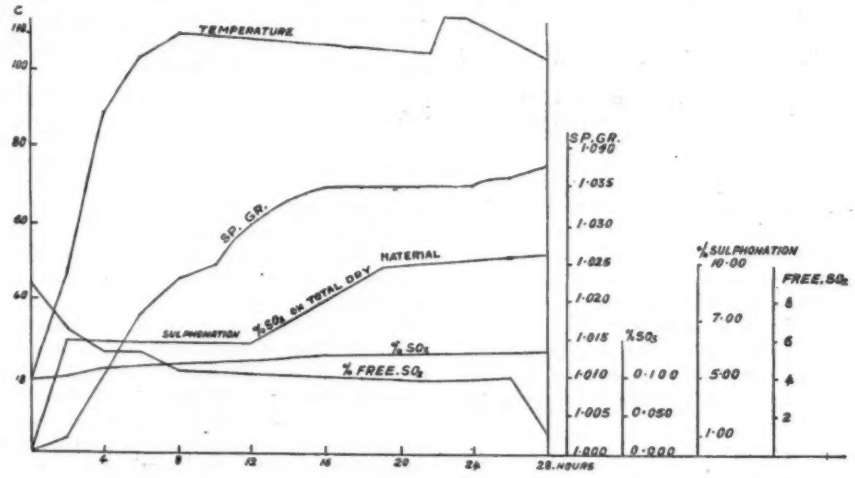
It has been evident to us that the sulphonation proceeds much faster in this process than in the regular bisulphite process of our mill; at the same temperature and acid concentration the purification of the cellulose as well as the disintegration to pulp is more thorough, as in the mill operations we observed uniformly a minimum of screenings. Moreover, the white water from the pulp de-watering machine following the screens is entirely free from fiber. We infer from this that the length of fiber is conserved, and although the disintegration proceeds very far, the pulp in the aggregate form of boiled chips retains a certain cohesion, but breaks down under the wash to a particularly white pulp.

In all these respects the contrast of the two processes worked side by side is well marked. In the bleaching process which follows, the behaviour of the pulps is similar; but more care has to be exercised with the new pulp to avoid oxidation effects (oxycellulose).

We are improving in our working of the process, and in our latest operations we have noticed that fully disintegrated pulp of the quality, strong, unbleachable, was obtained eight hours after reaching the temperature of 110° C.

A typical diagram is appended.

This brief description of the process characterises it as a sulphurous acid process, and the auxiliary contribution of the ammonia is that of assisting the main reaction of sulphonation and minimising the secondary reactions of the lignone (of the fiber) and lignone derivatives (of the liquor).



Graphic figures of first SO_2 cook on large digester.

In regard to the yield of cellulose, laboratory digestions in a special series have given figures 55.0—50.0% when the ammonia was added in proportions 0.5— 0.1%. But in view of the known errors of such observations we reserve any conclusions on this point until we have the evidence of the mill statistics of continuous production.

The investigation of the by-product has been systematically followed up, and the results are recorded and discussed in the following communication.

We have purposely limited ourselves to the scientific technology of the process, upon which we have a few words to say in conclusion.

Since the publication of our previous paper Klason (Ber., 1925, 58, 375) has noted our results by reminding us of the Tilghmann process and patents, 1866-9, and his own investigations resulting in confirmation of Tilghmann's statement that sulphurous acid is the effective main reagent in the pulping process.

We who have worked continuously in this sphere from the earliest days of the "bisulphite" process (1884) need no reminder of the Tilghmann patents: their statements and claims confronted us from the first. The Ekman-Fry group with which we (Cross and Bevan) were associated were not satisfied with their empirical achievement—the Ekman process—but pursued a methodical scientific line of investigation. Their line led them from the action of water and steam, through a sulphurous acid phase, to the bisulphite solution of the problem.

It must be recognized that the science of the period (1870-82) had established nothing in respect of the constitution of lignone,

and gave no suggestion of a reaction of aqueous sulphurous acid of the order —CH:CH—+H.SO_3H=—CH_2.CH(SO_3H)—.

Adopting as reasoned conclusions from their methodical investigations that the bisulphite was the main and specific reagent, and the sulphurous acid (excess) was auxiliary by way of hydrolytic and deoxidation effects, and taking into review the results of our investigations of lignone and lignocellulose (J. Chem. Soc., 1882-3), we are justified in putting forward the hypothesis that the ketohexene groups of the lignone carried a side chain of the acrylic type, and this analogue of cinnamic aldehyde reacted similarly, forming an aldehyde-sulphite, changing to a sulphonic acid by migration of the SO_3Na group.

To this major effect are added the hydrolytic action of the acid, and deoxidation as manifested by changes of colour due to quinonic constitution of the characteristic component groups of the lignone complex.

This partially hypothetical account of the mechanism of the "bisulphite" resolution of the lignocellulose passed into current text-book literature, and so far as we are aware has not been challenged. It is reserved to the present authors to show, as we have now done, that the sulphurous acid, reacting as H.SO_3H is necessarily more effective than its salts: that the bases employed in the industrial bisulphite process are diluents of the main reaction, this effect requiring to be compensated by increased temperature of digestion; and in regard to the final products—the cellulose and the complex of soluble by-products—the former is prejudicially affected in yield and quality, and the latter by the presence of the basic matter which has to be removed by additional treatment to render the product available for industrial use.

The product of the new process is directly available for several industrial uses, and for the preparation of new products such as those described in the following communication.

W. L. Glass Goes With B. F. Goodrich Rubber Co.

Walter L. Glass, Member TAPPI, has recently joined the B. F. Goodrich Rubber Company, Akron, Ohio, in the paper mill equipment department.

Mr. Glass graduated from the University of Syracuse in 1916 and has had a varied practical experience in pulp and paper mill operation, in groundwood, sulphite, sulphate and paper making, as well as in steam production.

After graduation Mr. Glass spent several years with Minnesota and Ontario Paper Company at International Falls, Minn., as well as with Backus-Brooks at Kenora, Ont., where he had charge of the groundwood mill. More recently he has been with Abitibi Power and Paper Company, Ltd., Iroquois Falls, Ont., on the experimental engineering staff, doing a great deal of practical test work on paper drying, particularly in relation to determining the relative efficiency of various types of rubber press rolls. There also he had charge of the investigations towards improving rubber belt service.

With the wide experience of Mr. Glass in paper manufacturing, his present connection with B. F. Goodrich Rubber Company will be of value to both it and the industry.

Course in Papermaking at Neenah

APPLETON, Wis., August 12, 1925.—A course in papermaking and paper science will be taught in the vocational school at Neenah, during the coming term. The course has been made possible by the state board of vocational education which will reimburse the local board.

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Societies To Meet At Chemical Exposition

The list of chemical and allied societies and associations which will meet in New York during the week of the Chemical Exposition, continues to grow. In addition to the big chemical industry banquet which will be held under the auspices of a dozen or more organizations, individual meetings of a technical or business nature are being planned for the week of September 28 to October 3, which is Chemical Exposition Week at the Grand Central Palace, New York. Meetings which have been definitely scheduled, or are expected to be held, include an intersectional gathering of the American Chemical Society, meetings of the American Ceramic Society, Society of Chemical Industry, Technical Association of the Pulp and Paper Industry, the Salesmen's Association of the American Chemical Industry, National Association of Finishers of Cotton Fabrics, and the American Institute of Chemical Engineers. Others are expected to be added to this group before the beginning of September.

What appears to be the largest gathering of all will in all probability be the meeting of the eastern sections of the American Chemical Society. The fact that the annual meeting of the Society was held on the Coast this year, cut down the attendance from the East to a normal extent, and it is expected that a meeting in New York during the Chemical Exposition will be largely attended. All sections east of the Mississippi are expected to be represented.

Plans for the meeting of the Technical Association of the Pulp and Paper Industry have not been fully made up as yet, and will be announced later. The same applies to the Society of Chemical Industry. The meeting of the American Institute of Chemical Engineers will be held in the form of an independent banquet at the Hotel Commodore, New York, close to the Grand Central Palace where the Exposition will be staged. The annual meeting and election of officers of the Salesmen's Association of the American Chemical Industry has been held during past years at a luncheon during the week of the Chemical Exposition, and this policy will probably be pursued this year.

Bright Stain for Bleached and Unbleached Sulphite

Modification from the procedure as given in Paper Testing Methods (1922) developed by the originator, C. G. Bright.

In applying stain for bleached and unbleached sulphite, the following changes from the original methods should be noted:

FERRIC FERRICYANIDE STAIN

Ten cc. each of Fe Cl_3 and K_3 Fe (CN)$_6$ solutions are pipetted into a small beaker and the moistened slide is stained in this 20 minutes at 20°C. Under these conditions, the staining on the unbleached is very clear, the bleached is left absolutely colorless and no stain is deposited on the slide. The former directions call for staining 15 minutes at 35°C, under which conditions the stain seems to decompose and muddy results are often obtained on subsequently staining with substantive red.

Furthermore, the ferric chloride and potassium ferricyanide solutions themselves seem to decompose if the temperature is too high. They keep much longer and give better results if they are always kept below 20°C. In the summer keep the solutions in a bath of running city water, which should not get above 20°C. and use a similar bath for the beaker when staining.

SUBSTANTATIVE RED STAIN

Dissolve 3 grams in 500 cc distilled water.

Stain 20 minutes at 20°C with DuPont's benzopurpurine, 4 B. The crude material, untreated with soda ash, is required. (This may be obtained directly from E. I. DuPont de Nemours Co., Wilmington, Del.

Chemical Studies on the Pulping of Aspen

By F. G. Rawlings[1] and J. A. Staidl[2]

In previous publications emanating from the Forest Products Laboratory, some of the chemical changes which take place in wood when it is treated with certain reagents have been described, more particularly those changes which take place when bisulphite and sulphur dioxide[3] and when caustic soda[4] are used. Although the commercial application of the reagents which have been considered is made primarily for the removal of lignin from wood, all of them have a solvent effect on the cellulose also. Conditions favoring an increase in the rate of solution of lignin also favor the solution of the cellulose, and it has been found difficult to retard the latter, especially when the reagents used are distinctly acid or alkaline. Since the solution of the cellulose is recognized as being due to hydrolytic action, especially in the presence of acids and alkalies, the removal and solution of lignin should be attempted at temperatures at which the hydrolysis proceeds at a slow rate, preferably in the absence of acids or alkalies. The treatment of wood with neutral reagents for the removal of lignin would therefore suggest itself as a means of reducing the loss of cellulose by solution. The study here reported is one of a series of tests in which wood was treated with neutral salts, and it also includes, for purposes of comparison, some tests in which caustic soda was used.

Factors Influencing the Choice of a Neutral Salt

Whenever wood is treated to temperatures above 100° C. in the presence of water, organic acids are formed, the quantity of which depends on the time of treatment and the temperature. Such acids have a marked accelerating effect on the decomposition of the cellulose, by reason of their acidity, and to suppress this effect it becomes necessary to cause them to react with some chemical in aqueous solution, so that a condition of neutrality may be maintained. By the use of the soluble salts of weakly ionized polybasic acids as cooking reagents, especially in large excess, deviations from neutrality of solution may be kept within desired limits, and the chemical effect of the resulting organic acid salts will be diminished by mass action of the salt in excess. Such salts are typified by sodium borate, sodium sulphite, sodium carbonate, disodium hydrogen phosphate, and sodium oxalate.

In the present investigation sodium sulphite was used as the cooking reagent to afford a comparison with the bisulphite process, by reason of the presence of the same acid radical, and with the soda process, by reason of the presence of the same base. Except in one or two experiments, a large excess of sodium sulphite above the amount required for the complete solution of the lignin was used. The combination of some of the excess sodium sulphite with the organic acids produced from the wood prevented the solution from becoming acid to methyl orange, so that the neutrality of the solution was readily maintained between the values indicated by the color change of phenolphthalein and of methyl orange, respectively. Also, the excess of sodium sulphite present prevented the retardation of the velocity of the reaction which would have been caused by a lack of cooking chemical.

Materials Used

Sound aspen wood, free from bark, was ground in an airy dry state until it would pass a 40 mesh screen and be retained on one of 60 mesh. Material of this degree of fineness offers no obstacle to penetration by the chemical solutions and is free from very fine material. The ground wood was extracted with a mixture of benzene and alcohol, to remove fats and waxes and cause the wood to be wetted more readily by the cooking solution. The loss in weight of the wood on extraction amounted to 4.11 per cent.

The sodium sulphite solution was prepared from caustic soda and sulphur dioxide, and was analyzed immediately before use by titration with standard acid and iodine solutions.

The steel autoclave in which the reaction took place is similar in construction to one of bronze described in a previous publication[5]. The wood and the chemical solutions were contained in a glass vessel which fitted inside the autoclave. Water was used between the glass container and the sides of the autoclave for the better conduction of heat. The oil bath in which the autoclave was heated was controlled within 0.5° C. of the desired temperature by means of a thermostat and electric heating elements.

Operation

A 15-gram sample of the extracted groundwood, previously dried to constant weight at 105° C., was introduced into the glass container with 150 cc. of solution containing the desired amount of sodium sulphite. The glass container was placed in the autoclave, which was closed, and the apparatus was placed in the oil bath. The temperature of the latter was from 10° to 15° C. higher than that desired for cooking, so that the cooling effect of the autoclave would reduce the temperature to the desired point, which required about five minutes. At the end of the cooking period the autoclave was cooled in water and the contents were removed for analysis.

Analytical Procedure

Owing to the large excess of sulphite, the spent cooking liquids were not deeply colored, being yellow to light brown. They darkened considerably, however, on exposure to air. The amount of residual sodium sulphite was estimated by direct titration with iodine. The error in the estimation due to reaction between iodine and the organic material in the liquid was very slight, as was demonstrated by precipitating the excess sulphite by means of barium chloride in the presence of a small amount of sodium hydroxide and estimating the barium sulphite in the precipitate.

The treated wood or pulp was washed to remove cooking liquids and dried at 105° C. to constant weight for the determination of yield. The cellulose in the pulp was estimated by Schorger's modification[6] of the Cross and Bevan method and the lignin by that of Ost and Kilkenning[7]. Analysis by the same methods showed that the extracted wood contained 64.56 per cent of cellulose and 21.83 per cent of lignin.

The pulps obtained in these tests were lighter in color than the original wood, except in one instance. (Cook No. 10.) Pulps obtained at the higher temperatures, however, acquired a faint pink coloration after washing.

Description of Tests

Series I

In this series the conditions of time and temperature of heating and volume of solution were kept constant. The ob-

[1] Assistant in Charge, Section of Pulp and Paper, U. S. Forest Products Laboratory, Madison, Wisconsin.
[2] Assistant Engineer in Forest Products, U. S. Forest Products Laboratory, Madison, Wisconsin.
[3] Chemistry of the Sulphite Process, by Miller and Swanson. Paper Trade Journal, Oct. 10, 1923; April 10, 1924; Oct. 16, 1924.
[4] Chemistry of Pulps, by Bray and Andrews. Paper Trade Journal, May 10, 1923.
[5] Presented by Miller and Swanson before the Cellulose Division, American Chemical Society, Baltimore, Md., April, 1925.
[6] J. Ind. & Eng. Chem. 9, 556 (1917).
[7] Cross and Bevan, "Researches on Cellulose," 1905-1910, 3, 39.

ject sought was the effect of a variation in the proportion of sodium sulphite to wood upon the yield of cellulose at a temperature of 170° C. Since the volume of solution was kept constant, these variations were accompanied by corresponding variations in the concentration of the solution. The chemical was largely in excess in all cases, except in Cooks No. 10 and 3, with respect to the amount required to dissolve the lignin.

The data are given in Table 1.

It will be observed that in each cook the percentage of cellulose obtained is practically the same when calculated to the basis of original wood. Therefore, since little difference is found in the yield of cellulose when the residual sodium sulphite varies between 16.8 and 109.2 per cent of the weight of the wood, the excess in itself causes only a slight loss of cellulose. In cook No. 10, where a small quantity of sodium sulphite was used, the yield of cellulose was slightly lower than in the other cooks, probably on account of the organic acids formed, which can not be considered as being negligible in quantity when compared with the amount of sodium sulphite. The pulp in this test (Cook No. 10) showed a tendency toward being "burned" or darkened in color. The removal of lignin appears to be independent of the removal of cellulose, but the tests fail to show any marked acceleration in lignin removal even when the concentration of the sodium sulphite solution is increased ten times. The practically constant loss of cellulose throughout the series is due to the action of water at the high temperatures used, the presence of sodium sulphite serving to prevent the formation of insoluble substances and their deposition on the residual fiber. In Cook No. 10 this protective action was reduced by the smallness of the quantity of chemical used.

SERIES II

Having shown in the previous series that an excess of sodium sulphite in itself between the limits shown in Table 1 causes only a very slight loss of cellulose, the tests comprised in Series 2 were made to determine the effect of varying the temperature of reaction, using 50 per cent by weight of sodium sulphite on the wood. The sodium sulphite solution made up to a volume of 150 cc. as in the previous series. The temperatures were varied between 120° C. and 185° C., being maintained at the desired point throughout each test. Table 2 shows the results of the experiments.

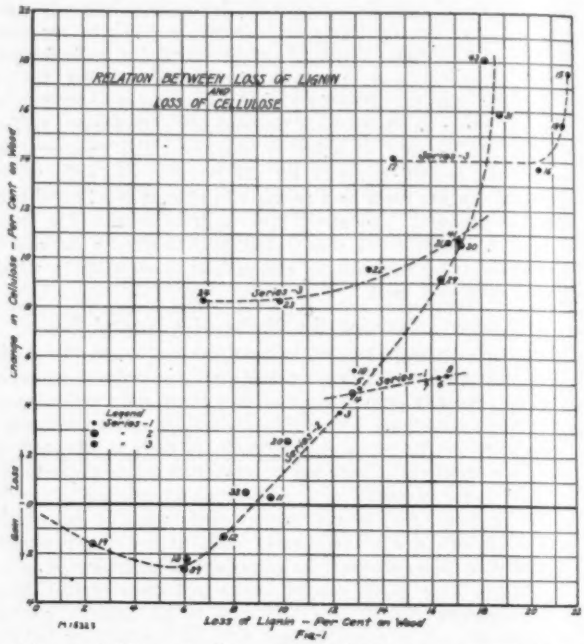
The removal of lignin occurs at a more rapid rate at the higher temperatures, but even after treating the wood at 185° C. a considerable amount still remains in the residual fiber. At temperatures in excess of 170° C., a large loss of cellulose takes place, which is to be expected, since hydrolysis of cellulose increases with the temperature.

At temperatures around 130° C., before a loss of cellulose is experienced, the apparent gain of cellulose may be explained by the production of some compound which is resistant to the various treatments in the Cross and Bevan method. It is quite possible that such a substance is still present in the pulps obtained at the higher temperatures.

The removal of the greater portion of the lignin requires temperatures and periods of treatment such that yields of cellulose of less than 50 per cent by weight of the wood are obtained. A comparison of the effect of sodium sulphite with that of caustic soda is therefore interesting in this connection.

SERIES III

In Table 3 may be found some of the results obtained in the treatment of aspen wood with caustic soda. The first four cooks show the effect of the time of heating in the presence of a large excess of caustic soda, at a temperature of 170° C. The reaction is very rapid, a pulp containing less than 3 per cent of lignin being obtained in one hour; a pulp containing the same amount of lignin requires a treatment with


RELATION BETWEEN LOSS OF LIGNIN AND LOSS OF CELLULOSE
Loss of Cellulose - Per Cent on Wood
Gain - Loss
Loss of Lignin - Per Cent on Wood
Legend
Series -1
Series -2
Series -3
Fig-1

sodium sulphite extending over six hours at a temperature of 185° C. In both cases much cellulose is lost.

The other five cooks were made at different temperatures, a smaller proportion of caustic soda to wood being used to permit the reaction to proceed at a slower rate. The time for each cook was 2 hours. Although at temperatures of 140°-150° C. only about 25 per cent of the lignin has been dissolved, the loss of cellulose is very marked when compared with the slight gain at the same temperatures shown in Table 2. A graphical relation between the loss of cellulose and loss of lignin in all the tests is shown in Figure 1, where the points

TABLE I

Cook No.	Cooking Conditions: Weight of wood	Cooking Conditions: Na_2SO_3 used based on weight of wood	Cooking Conditions: Temperature	Cooking Conditions: Time of cooking	Results of Cook: Yield of pulp	Results of Cook: Na_2SO_3 consumed based on wood	Analysis of Pulps: Cellulose based on Pulp	Cellulose based on Wood	Cellulose based on Wood (loss)	Lignin based on Pulp	Lignin based on Wood	Lignin based on Wood (loss)
	G.	%	°C	Hrs.	%	%	%	%	%	%	%	%
10*	15.0813	12.8	170	4	68.73	9.0	85.89	59.03	5.53	13.00	8.93	12 90
3	14.6257	25.8	170	4	68.73	9.0	86.68	60.72	3.84	13.82	9 68	12.25
4	14.6283	51.3	170	4	68.49	11.9	87.49	59.92	4.64	13.15	9.00	12 83
5	14.6148	77.6	170	4	68.42	12.9	87.37	59.77	4.79	12.02	8.77	13.06
6	14.6250	103.3	170	4	67.79	16.0	87.47	59.30	5.26	8.21	5.56	16.27
7	14.6001	103.5	170	4	68.07	....	87.42	59.51	5.05	8.89	6.05	15.78
8	14.5907	128.9	170	4	67.63	19.7	87.60	59.24	5.32	7.69	5.20	16.63

* Pulp was slightly burned.

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TABLE 2—SERIES II
Cooking Conditions and Analysis of Products in the Treatment of Aspen with Sodium Sulphite
Time and Chemical Approximately Constants

Cook No.	Cooking Conditions: Weight of wood	Cooking Conditions: Na_2SO_3 used based on weight of wood	Cooking Conditions: Temperature	Cooking Conditions: Time of cooking	Results of Cook: Yield of pulp	Results of Cook: Na_2SO_3 consumed based on wood	Analysis of Pulps: Cellulose based on Pulp	Cellulose based on Wood	Cellulose based on wood change	Lignin based on Pulp	Lignin based on Wood	Wood (loss)
	G.	%	°C	Hrs.	%	%	%	%	%	%	%	%
19	14.7139	54.3	120	4	90.20	0.7	73.32	66.13	+ 1.57	21.65	19.53	2.30
13	14.7880	54.3	130	4	87.03	1.6	76.67	66.72	+ 2.16	18.08	15.74	6.09
39	15.1301	52.5	130	4	87.29	1.6	76.91	67.13	+ 2.57	18.09	15.79	6.04
12	15.0987	53.5	140	4	84.25	3.6	78.15	65.84	+ 1.28	16.89	14.23	7.60
11	15.0872	53.5	150	4	80.55	6.2	79.83	64.30	— 0.26	15.37	12.38	9.45
32	15.1333	51.5	150	4	80.35	5.0	79.68	64.02	— 0.54	16.63	13.36	8.47
20	14.7225	54.3	160	4	76.78	7.4	80.66	61.93	— 2.63	15.15	11.63	10.20
4	14.6283	51.3	170	4	68.49	11.9	87.49	59.92	— 4.64	13.15	9.00	12.83
38	15.1337	50.6	170	4	69.22	11.3	87.88	60.83	— 3.73	....	....	....
29	15.1471	50.9	180	4	59.39	18.4	93.17	55.33	— 9.23	9.11	5.41	16.42
30	15.1520	51.1	185	4	57.37	19.7	94.07	53.96	—10.60	8.11	4.65	17.18
31	15.1342	52.1	185	6	50.29	28.7	96.80	48.68	—15.88	6.01	3.02	18.81
43	15.1045	50.6	185	8	48.69	33.7	95.50	46.49	—18.07	7.39	3.59	18.24

+ Indicates increase or gain.
— Indicates decrease or loss.

in the graph are numbered to correspond to those of the cooks shown in the tables. The changes in the cellulose and lignin contents of the pulp are expressed as percentages of the weight of the original wood.

From the graph it can be seen that when sodium sulphite is used for the purpose of removing lignin from wood, no advantage is gained by its substitution for caustic soda in reducing the loss of cellulose if the lignin remaining in the pulp constitutes less than 7 per cent by weight of the pulp. This is due to the necessity of using high temperatures and the resulting hydrolysis of the cellulose by water.

Sodium sulphite may, however, be used to advantage at temperatures around 140° C. in recovering high yields of cellulose from wood, the residual lignin being removed by a chlorination method[3], of which the Cross and Bevan reaction is typical. The white color of the pulps obtained with sodium sulphite shows that this chemical prevents the deposition or production of brown substances on the fiber, such as those obtained by heating wood with caustic soda solution or with water alone.

The sum of the percentages of lignin and cellulose in the treated pulp affords some indication of the effectiveness of the removal of substances other than lignin and cellulose from the wood. Thus, in Series III, the pulps consist of cellulose and lignin only, even when formed at temperatures as low as 140° C., the sum of these substances constituting over 99 per cent of the pulp. In Series II, on the other hand, the cellulose and lignin together do not make up a total approaching 100 per cent of the pulp until temperatures of 170° C. have been reached.

Summary

A number of cooks have been performed by treating extracted aspen wood with aqueous solutions of sodium sulphite and caustic soda respectively. The neutral salt was chosen on account of its relation to bisulphites on one hand and caustic soda on the other. It is typical of the class of soluble salts of weekly ionized polybasic acids, although it may have a certain specific action on color not possessed by others of the class. It was used in excess to minimize side reactions and to neutralize organic acids formed during the cooking.

When approximately 52 per cent by weight of the wood of sodium sulphite is used, and the heating is continued for four hours between temperatures of 120° and 140° C., a slight increase in the yield of cellulose above that at lower concentration is found; this gain is due to the formation of compounds resistant to solution during the analytical manipulations. At higher temperatures hydrolysis resulting in loss of the cellulose takes place, such action being very marked at temperatures above 170° C.

Caustic soda removes substances other than lignin or cellulose from wood at temperatures below 140° C.; sodium sulphite requires a minimum temperature of 170° C. to accomplish a like result.

When less than 17 per cent of the wood is removed as lignin, caustic soda causes the solution of cellulose to a much greater amount than sodium sulphite; when, however, more than 17 per cent of the wood is removed as lignin, a larger loss of cellulose is experienced by the use of sodium sulphite than by the use of caustic soda.

TABLE 3—SERIES III
Cooking Conditions and Analysis of Products in the Treatment of Aspen with Caustic Soda

Cook No.	Cooking Conditions: Weight of wood	Cooking Conditions: NaOH used on weight of wood	Cooking Conditions: Temperature	Cooking Conditions: Time of cooking	Results of Cook: Yield of pulp	Results of Cook: NaOH consumed based on wood	Analysis of Pulps: Cellulose based on Pulp	Cellulose based on Wood	Cellulose Wood (loss)	Lignin based on Pulp	Lignin based on Wood	Wood (loss)
	G.	%	°C	Hrs.	%	%	%	%	%	%	%	%
17	15.0992	32.59	170	0.5	59.29	13.8	85.08	50.44	14.12	12.39	7.34	14.49
16	15.1067	32.57	170	1.0	52.30	16.2	97.24	50.85	13.71	2.77	1.45	20.38
18	15.1140	32.55	170	2.0	49.39	19.2	99.40	49.09	15.47	0.63	0.31	21.52
15	15.0930	32.60	170	3.0	47.10	21.5	99.65	46.93	17.63	0.21	0.10	21.73
41	14.8475	16.85	180	2.0	57.20	16.0	93.77	53.65	10.85	9.00	5.14	17.13
21	14.7310	16.97	170	2.0	58.89	14.6	91.44	53.84	10.72	8.77	5.16	16.67
22	14.7405	16.96	160	2.0	63.40	13.1	86.70	54.96	9.60	13.22	8.38	13.45
23	14.8897	16.79	150	2.0	68.02	12.0	82.66	56.22	8.34	17.54	11.93	9.90
24	15.1450	16.50	140	2.0	71.53	11.6	78.64	56.25	8.31	21.02	15.03	6.80

Note: Cook No. 41 was made with a sample of wood analyzing: Cellulose, 64.50 per cent; Lignin, 22.27 per cent.

Alfthan-Serlachius Method*

Manufacturing White Sulphite Cellulose From Resinous Woods

The G. A. Serlachius Company, one of the oldest established mills in Finland, has after many years of experimenting perfected a process for the production of sulphite cellulose from trees containing a large percentage of rosin. It has been producing bleached and unbleached sulphite from resinous woods successfully and economically for some time past.

As the Serlachius mills are large pulp producers, the fact that they had found it possible to make sulphite from resinous woods at a saving, very much impressed Jay Madden, Vice President of Parsons & Whittemore, Inc., New York, on a recent visit to Finland.

Parsons & Whittemore, Inc., have been appointed the agents for the Alfthan-Serlachius method for the United States. This method is described in U. S. Pat. No. 1507559. Although the Serlachius method has been used in Finland for the past few years, it has never before been exploited in the United States. It has, though, recently been introduced in France where Erik Serlachius and another Finnish engineer installed and worked the

SULPHITE MILL IN MONTECH

process at a mill in Montech, Tarn-et-Garonne, which through force of circumstances could not get spruce, hemlock and other non-resinous woods except at very high prices.

Working Out the Problem in a French Mill

The following description of the working out of the problem in the French mill will no doubt be found interesting by the paper mills in this country.

In France there is a species of pine, Pinaster, (Cluster Pine), forming large forests in the southwestern part of the country, covering an area of approximately one million hectare (about 2.5 million acres). The majority of these forest tracts are located along the coast between Bordeaux in the North and the Pyrenees in the South in the county of Les Landes, from which the French name "Pin des Landes" (Land of Pines) originates.

MARITIME PINE

A little more than a century ago this section was a veritable region of swamps and downs. The cultivation of forests through this territory was advocated and in 1778 work in this direction was begun by the planting of *Pinus maritima* (maritime pine). The

PULPWOOD OF MARITIME PINE

work was energetically carried on during the reign of Napoleon I and Napoleon III so that now this formerly unfertile ground is a forest of fine pine. Owing to the large growth of the sapwood which is softer than ordinary pines and due to the fact that the trunks are crooked and heavily branched, maritime pine cannot be used for lumber. This timber could only be used in the country for kindling wood and for use as mine props. For the latter purpose France is exporting annually about 800,000 tons which is equivalent to about 1.5 million cubic meters. Of course, characteristic of this growth of timber it has always yielded a large

* Based on an article appearing in The Finnish Paper & Timber Journal, June 15th, 1925.

volume of rosin. The trees are tapped in the forests and the sap separated into turpentine and rosin, the rosin forming a valuable export commodity for use in the paper industry.

Since the *Pinus maritima* is of the order *Coniferæ* having a fiber whose average dimensions are 3 mm. in length and 0.04 mm. in thickness, it would be suitable as raw material for the manufacture of paper. Owing to the exceedingly large percentage of rosin in this wood the paper mills in France were not able to utilize it as a source of supply for cellulose.

According to R. Michel-Jaffard ("La Papier," Jan.-Oct. 1924), if these trees have been tapped the sap around the notches contains approximately 15 to 17 per cent rosin, while the average rosin content is about 8 per cent in the sap of trees that have not been tapped. Furthermore the sapwood of these trees is of a nature having considerably greater resistance against chemical influences than softer timber.

The First Experiments

In PAPER TRADE JOURNAL, Oct. 30, 1924, R. Michel-Jaffard writes that the first known experiments to make white sulphite from resinous woods were made as early as 1899 at Arcachon, Gironde, where a sulphite mill was built especially for that purpose. The waste from sawmills was used as raw material. This was cooked by an ordinary sulphite method and then washed in a solution of caustic soda. The attempt was not successful and the mill had to be closed soon after.

Experiments in Sulphite Mill at Monteck

During the month of March of last year the Alfthan-Serlachius method was used in experiments on this class of timber at a sulphite mill in Montech, Tarn-et-Garonne, built shortly after the war. Most of the machinery was installed by the Karlstads Mfg. Co. of Sweden. The mill was constructed with the view of using wood grown in the North but during the time of the erection of the mill a decided change of conditions came about. The price of timber and freight rates increased while the price of cellulose declined. Under these circumstances the mill could not be operated on a profitable basis.

The owners of the mill decided to use the cheaper grade of pine trees obtainable from the forests near at hand. Having learned of the Alfthan-Serlachius method owned by G. A. Serlachius Co., they entered into immediate negotiations with this firm. Erik Serlachius and Aarne Levander, engineers associated with the G. A. Serlachius Company, proceeded to Montech and there made experiments.

Description of the Cooks

The machinery was similar to the types now in use at sulphite mills, while the wood, a product of the nearby forests used on the experiments, was of the following nature.

COOK 1. The wood was in a state of decay and partially blue age about 40 to 60 years. The diameter of the logs was 4 inches. The moisture content in this timber amounted to approximately 23 per cent, while the quantity of rosin determined by alcohol extract was 3.2 per cent.

COOK 2. This time fresh wood was used of a more rapid growth, age about 20 to 40 years. Diameter of the logs was 5 to 6 inches. From about 40 per cent of the wood used the rosin had already been tapped from their trunks of the trees. The moisture content of this timber was approximately 20 per cent while the rosin by alcohol extract amounted to 5 per cent.

COOK 3. The timber used this time was the same as that used in cook 2 but the moisture content ran only 18 per cent while the quantity of rosin as proven by alcohol extract amounted to 4.5 per cent. The results obtained can be best seen by the following comparative table.

	Cook 1	Cook 2	Cook 3	Average
Entirely barked wood used in the digester. Solid measure in cubic mtrs.	45.2	39.1	44.3	42.9
Entirely barked wood used in digester. Absolutely dry weight, kilos	24.600	20.200	21.800	22.200
Cooking time in hours	14½	14 1–3	15½	14.8
Result (including knots). Absolutely dry weight in kilos	9764	8841	9216	9274
Result of sulphite cellulose. Absolutely dry weight in kilos	——	——	——	7922
Percentage of sulphite cellulose obtained as compared to the weight of the wood	——	——	——	35.7
Percentage of knots as compared with the weight of the wood	——	——	——	6.1
Total percentage of results obtained as compared with the weight of the wood	——	——	——	41.8

Various qualities of paper were made from the sulphite cellulose thus obtained. For instance, about 12,000 kg. (26,455 lb.) of paper was made containing 50 per cent sulphite cellulose and 50 per cent waste paper composed of approximately 50 per cent ground wood. The weight of the paper was 92 grams per square meter, equal to basis 25 x 38 — 62.17/500. Greaseproof paper containing 100 per cent sulphite cellulose was also made from this pulp. The weight of the paper was 48 grams per square meter, equal to basis 24 x 36 — 28.33/480. The latter paper was tested by the Schopper method and reached a breaking length of 3800 meters (12,892 feet).

The sulphite pulp obtained from the second cooking ran through the papermachine without a single break although various thicknesses of paper containing only 50 per cent sulphite were made. In fact, the sulphite pulp obtained from the three different cooks and used for the manufacture of all qualities worked very satisfactorily, and the operations were not hindered by rosin or any other reason. During the entire time these experiments were being made the papermachine wires were not washed. When the experiments were completed small particles of rosin could be seen on the wires only with the aid of a magnifying glass.

These cooking experiments and the qualities of papers manufactured from pulp so obtained has established without doubt that the use of the Alfthan-Serlachius process is practical. By this method sulphite cellulose suitable and practical for making paper can be obtained from raw material containing a large percentage of rosin. All grades of papers including parchment and greaseproof can be manufactured from sulphite cellulose obtained in this manner. The mill at Montech was so well pleased with these experiments that it has purchased the patent for its exclusive use in France.

Will Solve Similar Problems in America

The eminently satisfactory results obtained by the use of the Serlachius method for making white sulphite from resinous woods in Finland at the Serlachius mill, and at Montech in France, amply demonstrates that this method will solve similar problems for the American and Canadian manufacturers, especially of those owning large tracts of southern and jack pines. Many of the foremost mills of the North American continent are now in touch with the American agents of the Serlachius method, Parsons & Whittemore, Inc., New York, from whom all information can be obtained.

Erik Serlachius, the Finnish engineer who installed the process above described in France, is now in the United States and is associated with Parsons & Whittemore, Inc., in marketing the Serlachius method. Mr. Serlachius is, of course, fully equipped technically, to solve whatever problems may arise.

Thomas Paper Mfg. Co. Incorporates

PORTLAND, Ore., August 17, 1925.—The Thomas Paper Manufacturing Company, Portland, has been incorporated by Robert Thomas, John K. Kollock and A. M. Haradon, with a capital stock of $2,000,000, yet to be subscribed. They will engage in pulp manufacture by a new process evolved by Mr. Thomas, using fir, cedar and other woods not generally available for paper fiber uses.

Current Paper Trade Literature

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts of Literature of the Technical Association of the Paper Making Industry

Clarence J. West, Chairman

Pulp and Paper Testing

Comparison of Paper Tests Made at Various Relative Humidities. Helen U. Kiely. Paper Trade J. 80, No. 6, 207-215 (Feb. 5, 1925). Comparative tests run on numerous grades of paper at 50% and 65% relative humidity showed: the Mullen test changes but slightly with increase in relative humidity from 50 to 65%, tending to increase very slightly with decreased humidity; the tensile test shows a general increase of about 15% on all grades on decreasing relative humidity from 65 to 50%; tear in the machine direction increased 8% with bonds and ledgers and decreased 10% with books, covers and writings on reducing relative humidity from 65 to 50%; the folding test showed a decrease of 0 to 50%, most of the figures falling within 20 to 30% on the cross direction fold. The high folding resistance obtained with tub sized paper at 65% as compared with 50% relative humidity, is due to the flexibility of the glue size in the moist atmosphere, and not to the inherent characteristics of the paper itself. There does not seem to be any decided advantage in 50% over 65% relative humidity, except as a timesaver in the folding test. The author has found that the most valuable results were obtained at 35% relative humidity, because at this point the moisture content of the paper is practically the same as the usual moisture at the time of shipping the paper from the mill.—A. P.-C.

Analysis of the Bureau of Standards' Brittleness Tester. H. U. Kiely and C. E. Apelgren. Paper Trade J. 80, No. 6, 219, 223 (Feb. 5, 1925); Paper 35, No. 17, 122, 124 (Feb. 12, 1925); (Compare P. L. Houston, Paper Trade J. 76, No. 15, 233, 235 (1923).) Tests run by this method on several grades of bond paper ranging from 100% rags to 100% wood showed: using a 5, 10 or 15 lb. calender roll had no apparent effect; creasing in the machine direction caused very little decrease (usually less than 5%) in pop test; the number of times the paper was passed through the calender did not affect the loss in test; high grade bonds should show a brittleness of less than 15%, medium grade bonds around 25%, and sulphite bonds around 30%. Tests on ledgers seemed to show there is no relation between this test ("pop fold") and the brittleness of the sheet. The accuracy of the test as applied to high grade bonds and ledgers is questioned.—A. P.-C.

An Analysis of the Weller Brittleness Tester. A. E. Bachmann. Paper Trade J. 80, No. 8, 51-52 (Feb. 19, 1925). The instrument consists essentially in a Schopper tensile tester with a relatively thick, metal, slotted tag in the lower jaw through which the paper is looped and both ends clamped in the upper jaw, so that on applying the tension a combined folding and tensile effect is produced. The brittleness is expressed numerically as the per cent loss of strength with the tag. Results on a number of bonds, ledgers and blueprints, showed the test varies with relative humidity more than other physical tests except folding, and that a relatively high humidity is required to avoid excessive brittleness. Tub sizing increases brittleness considerably. The test strips hould be cut in the machine direction of the paper, strips cut in the cross direction giving practically the same results as straight tensile test. The test is most accurate and best shows the qualities of the fibers themselves under bone dry or low humidity testing conditions. The average of 5 tensile and of 5 brittleness tests is considered to give a result accurate to approximately 10%. The test is considered better than the "pop fold" test (Houston, Paper Trade J. 76, No. 15, 233, 235 (1923)).—A. P.-C.

The Glarimeter and the Measurement of the Finish of Paper. R. E. Lofton. Paper Trade J. 80, No. 7, 47-49 (Feb. 12, 1925; Paper 35, No. 17, 132-136 (Feb. 12, 1925). A brief outline of the theory and development of the Ingersoll glarimeter, with a description of the instrument. A series of comparative tests by three operators with five instruments (3 new and 2 old type) showed that the new type is properly constructed and that satisfactory results can be obtained by different operators with different instruments. The old type, when properly adjusted, gives results checking those of the new type, but has some inherent defects which should be guarded against. The method of calibrating and the procedure to be followed in measuring the finish of papers and in reporting results, are given. A bibliography of 14 references is given.—A. P.-C.

Effect of the Clamping Device of the Mullen Paper Tester on Test Results. Leo W. Snyder and Stanley Henderson. Paper Trade J. 80, No. 7, 50 (Feb. 12, 1925). With the usual rubber washer there is a certain amount of creeping of the sample which varies with the age and condition of the washer, old washers giving lower results (by up to 8%) than the new ones, owing to greater creepage with new washers. All-metal clamps permit less creeping, and preliminary tests indicate that best results would probably be obtained with two plane slightly roughened surfaces.—A. P.-C.

Extractor and Friction Cleanser. F. T. Carson. Paper 35, No. 17, 39-40 (Feb. 12, 1925). An apparatus, consisting essentially of a special form of reflux condenser containing a felt friction member, has been developed for removing impregnating and coating materials from processed papers and other products in sheet form. Extractions can be made on certain types of paper, such as carbon paper and paper treated with linseed oil, which cannot be successfully extracted in the Soxhlet. A smooth sheet large enough for any ordinary physical test is obtained after extraction. The apparatus is applicable to quantitative determinations by difference. Carbon paper, paraffined paper, tar and asphalt waterproofed paper, artificial leather and balloon fabric have been successfully and quickly freed of processing materials.—A. P.-C.

Pulp Weight Factors. Jessie E. Minor and J. H. Graff. Paper Trade J. 80, No. 8, 49-51 (Feb. 19, 1925). As a result of a large number of determinations carried out on a large number of samples of pulps of different origins the authors recommend the following weight factors (compared to 1.0 chosen for rags) for the quantitative determination of fiber composition of papers by the Spence-Krauss count method: unbleached sulphite 0.738, bleached sulphite 0.680, sulphate 0.907, unbleached soda 0.529, bleached soda 0.485, groundwood 1.325; and also the following tentative factors pending more extensive investigation: unbleached flax 0.745, bleached flax 0.489, straw 0.361, unbleached manila 0.559, bleached esparto 0.554, unbleached jute 0.657, bleached hemp 0.606. Results indicated that for a given kind of pulp there may be some relation between fiber length and weight factor.—A. P.-C.

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Marketing*

By Harry R. Wellman, Prof. of Marketing, Amos Tuck School, Dartmouth College, Hanover, N. H.

Within the past five years we have witnessed the completed cycle of marketing methods. Associated with the pioneers, the tin peddler rattled up and down the country side, caring for the simple wants of the scattered communities. Now we have the tin peddler back again, but he has swapped the old "democrat" wagon for a truck, and upon the truck he has mounted a "cafeteria" type of store. But as in the very beginning, through all the transition stages and at the end, the peddler of 1860 and the peddler of 1925 perform just the same service. They have the merchandise when it is wanted, where it is wanted and at the price the market is willing to pay for it.

Changing Conditions

Times have indeed changed; rubber tires have replaced steel rims, cement and macadam roads have replaced lanes, roads and cattle paths. Great cities now stand where once stood the old "four corners," dignified by the store, post office and church. The natives of that day have sunk to an insignificant percentage of our great population. Radio, the movies and Ford cars have made even this great mass of people more "neighbors" than they were in the early days.

As population increased, as our towns sprang up north and south, west and still further west, our marketing problems increased. Towns and cities displaced profitable farm lands so that each year we must go further and further away to secure our necessary food supplies. This added distance has materially added to the costs of our great food-stuffs as well as our other great raw materials, such as iron, lumber and pulp. Moreover, these greater distances have proportionately increased the number of middlemen necessary to supply the merchandise we wish to buy. Where the middleman has been avoided a warehouse has taken his place. But the expense of this type (branch) of distribution has never been found to be materially less than when the merchandise moved through the usual jobbing channels.

These increasing costs have incensed the public, and many remedies have been suggested. The middleman has received the major blame for this condition. He has been labelled a parasite and worse. Co-operative associations have been established to "beat the middleman and lower marketing costs." With the exception of the California Fruit Exchange, which is a reasonably "tight" business corporation, and a few others engaged in marketing apples, other fruits and nuts, these co-operative associations have failed to achieve their objective. The basic reasons for their failure is simple: when prices are good, members sell elsewhere; when prices are bad, the association has to "hold the bag." Unfortunately this costs the association quite as much as it does the regular warehouse, oftentimes more.

Primarily, while distance from the market has been an important factor in the rising cost level, it is by no means the most important factor. Up to 1900, merchandise was sold as fast or even faster than it was manufactured. This particular period might be characterized as the period when merchandise was bought, not sold. Population was increasing faster than manufacturing capacity. When one stops to analyze these early business successes, it becomes hard to see how they could have helped being successful. The market was always waiting for them.

Introduction of Service

The second period, 1900-1915, is characterized by the introduction of "Service." Advertising had come in and it became necessary to at least claim some point of advantage for manufactured products. So the word "Service" came in and we were serviced from perfume to pumps. In spite of this new selling aid, however, the war caught us with filled warehouses and with apparent saturation in a great many commodity lines.

The war saved all that, and from 1915 to 1920 we were sale mad. Merchandise couldn't be manufactured fast enough; war profits went into complete advertising campaigns and a good time was had by all. During this period we had expanded our manufacturing capacity until we could take care of the general needs of 150,000,000 people. When the war was really over we had to take care of only 111,000,000—and the crash came. Prices went tumbling, merchandise was thrown on the market for whatever price it could secure.

Probably it would have been better for American business generally had the banks allowed the smash to be more complete. If we had wiped out the over-production, the unnecessary plants and new businesses at that time, our period of readjustment would have been shortened. But we chose the other method and the period of 1920-1925 has seen us introducing and pushing sales; "Selling Sales" not selling merchandise except as an incidental part of the volume business. This method is well illustrated by the increasing bargain basements, the growth of new chain stores and the sale-a-day, sometimes a sale-a-day in each department even, in the department stores. At no time in the sales history of this country

* From National Paper Box Manufacturers Association Bulletin.

has the ultimate consumer had a better deal. He or she could and can today (May 27, 1925) buy wanted merchandise at any price they wish to pay. Purchase this merchandise in the department stores on first advertised price—or wait for a sale. If the sale price isn't low enough, wait for the basement sale. If this isn't low enough, try the chain store or cash store and finally, if you can't get the price you want, wait for one of the new swarm of house-to-house pests or purchase by mail. If the public is paying high prices, it is doing so because it wishes to, not because it has to.

But in this period of forced selling, the manufacturer has suffered. In the last analysis he has been "giving the party." The various merchandise out-lets, jobber, retailer, specialty store and what not, sensed the over-produced condition and simply waited out the manufacturers. The result has been increased sales but at a lessened profit to the maker and seller alike. This condition has been aggravated by the constant introduction of new models, new styles and new articles designed to replace existing merchandise. Manufacturers have assumed that because they didn't make a certain article it wasn't manufactured. On reaching the market they have been surprised to find that it was filled and often running over. So they have "changed the style" and some fifty or a hundred manufacturers following suit, the competitive situation has been aggravated rather than improved.

This forced selling has not reduced costs because it has lowered the unit volume. In turn, the jobber has felt obliged to carry all these new lines, and his cost per unit has not decreased. Finally, the retailer, trying to please everybody, has tried to stock all this new merchandise, with the result that his per unit profits have decreased and that he has been forced to put many of these added costs on staple lines, thus increasing the average price of staples to the consumer. So, in the long run, the increased cost of staples more than offsets the savings from purchasing specialties and some commodities at decreased prices. The public pays for failures as well as successes.

Wastes in Distribution

So, while increased distances have materially increased our marketing costs, they become almost insignificant when compared with the wastes of our present methods and systems. Mr. Hoover has outlined the following wastes in distribution that can be remedied:

1—Waste from the speculation, relaxation of effort and extravagance of booms with the infinite waste from unemployment and bankruptcy which comes from the inevitable slump.

2—Wastes from excessive seasonal character of production and distribution.

3—Waste caused through lack of information as to national stocks, of production and consumption with its attendant risk and speculation.

4—Waste from lack of standards of quality and grades.

5—Waste from unnecessary multiplication of terms, sizes, varieties.

6—Waste from the lack of uniformity of business practices in terms and documents, with resultant misunderstandings, frauds and disputes.

7—Wastes due to deterioration of commodities .

8—Waste due to inadequate transportation and terminals, to inefficient loading and shipping and unnecessary haulage.

9—Waste due to disorderly marketing, particularly of perishables, with its attendant gluts and famines.

10—Waste due to too many links on the distribution chain and too many chains in the system.

11—Waste due to bad credits.

12—Waste due to destructive competition of people who are in fact exhausting their capital through little understanding of the fundamentals of business in which they are engaged.

13—Waste due to enormous expenditure of effort and money in advertising and sales promotion effort, without adequate basic information on which to base sales promotion.

14—Waste due to unfair practices of a small minority.

15—A multitude of wastes in use of materials, in unnecessary fire destruction, in traffic accidents and many other directions.

These wastes are not the small change of industry and commerce. There is scarcely a step in this accomplishment of squeezing out waste which does not interpret itself in millions of dollars of annual saving.

Economic Readjustments

At the close of every period of great expansion in business we always have had and we probably always shall have the following economic readjustments: first, the failure of businesses insufficiently financed or not well operated; second, the consolidation of businesses that united would occupy a sounder financial position than if operated individually, and third, standardization of product, model and style as consolidation finds itself in position to eliminate duplication. We are now in the second period, the period of consolidation. Failures have been fairly constant, with the result that business is in a sounder position today than at any time since the war. Consolidations are in evidence, and with them will return standardization and simplification to reduce waste in marketing methods.

Your own association has been seriously affected by the changes outlined as occurring since 1920. It will be even more seriously affected by the changes that will follow. Simplified practice must be introduced and followed: standards in sizes and materials must be set and rigidly enforced. The manufacturer must buy boxes for less money. You, individually, must make more money or at least assure yourselves of a steady return on your investment. Both of these objectives can be reached by your association supported by its full membership and co-operating with the Department of Commerce's Bureau of Simplified Practice and Standardization. Such co-operation will result in increased unit volume and unit profit.

If the new period in which we find ourselves could be characterized, it would be characterized chiefly by the re-emergence and capitalization of common sense as applied to manufacture and to sales. Manufacture for a known market only and manufacture only articles that perform a real service to mankind. The blah and fluff period is over because there are no longer great new markets to be exploited nor huge earnings to be foolishly expended. Use selling methods scaled to fit the known market and based on selling at a profit rather than trying to sell enough volume to beat your 1918-1920 figures. In other words, seek out those manufacturers to whom you can be of service; design for those manufacturers containers that will be of real service to them, to their jobbers, to their retailers and to the public. By doing these things you will reduce the number of your customers, but you will increase your volume and profit per customer because you will then be performing a real service in the general marketing methods of the whole country.

Fundamental business conditions are sounder than they have been since 1915.

Given courage to prune off the weak branches of business, given patience to work out our gross distribution problem in terms of 113,000,000 consumers, and given sense enough not to open wide every factory door at the mere suspicion of good business, we are approaching the ten best productive years of American business. If your association and other similar associations will accept the part they are to take in the new business line-up, we can safely say that our period of uncertainty is over, and that profitable business is now ours for the planning.

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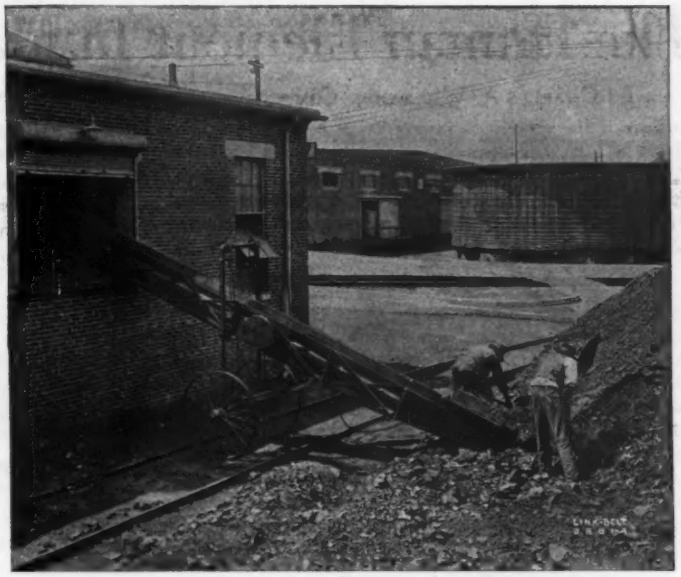

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THIS YEAR LINK-BELT IS FIFTY YEARS OLD

The Human Element In Material Control

By Charles A. Williams, Comp., American Safety Razor Corp., Brooklyn, N. Y.

The problem of the control of material may be most appropriately considered after the agony of inventory taking has been passed. Then one can look back upon the year just closed with the annual sigh of relief and the annual resolution to do better next time. "Thank the Lord—that's over" is a fitting remark to place at the end of our inventory adjustments.

A Typical Situation

The expression "inventory adjustments" is in itself a confession that something is wrong. Let us view a typical situation. Everything is adjusted, covered and balanced and of course next year we will not have the disconcerting differences that in some mysterious malicious manner placed a halo of gloom over the month of December. But when next year passes into the discard, we find that some of our old friends are still with us—not as vigorous and vicious as usual, perhaps, but their very presence is a ghost that stalks with us through the year and somehow will not be put aside. So it goes from year to year, and a shadow of doubt is always hovering over the monthly statements. Inventories are a source of dread, sometimes dealing a severe blow to our fondest hopes and often exhausting the very complete stock of alibis with which all accountants are provided.

An examination into the source of this difficulty is certainly worthy of all the effort that can be devoted to it. It is a difficulty of prime importance that results from one cause—the lack of control of material. The other elements of cost, labor and expenses, do not present any special difficulties. They can be controlled with an exactness that is practically absolute. Their values can be measured with an accuracy that eliminates the possibility of error. There is no loss.

Material, however, is by its nature full of variables. The control of materials presents two main problems: 1—that of valuation control, and, 2—that of quantity control. The problem of valuation control is important enough to require separate consideration and will not be treated here. Quantity control is the problem of our present attention.

Cost accounting is not an exact science. Like conditions do not bring like results in the science of cost accounting, because there is added to the three basic elements, material, labor, and expense, a fourth element, viz., the human equation. It is the introduction of this human element which removes cost accounting from the realm of exact science and puts it in the category of those things which are influenced by opinion and by errors of execution.

The human element is a larger factor in material control than in the other elements of cost. In fact, so far as labor and expense are concerned, these are both susceptible to an exact accounting and complete control. The whole problem centers on material.

Two Points of View

In this matter of material control there are two points of view: 1—that of the man who installs a system of material control and then departs, and, 2—that of the man who stays and suffers with it. To one who has been in both positions, the answer is plain. It is better to depart. Beautiful theories often bring weird results and most systems of material control do not work; at least, not with the degree of success that we have a right to expect. They do not work because where theory ends and practice begins there enters on the scene that most variable of variables, the human element. A well-planned system ought to place any cost element under control, and the professional cost accountant can certainly plan a system for quantity control of material. If the system of control is theoretically correct, then this human element is responsible for any lack of control that may result. The problem seems to be one of management. From this point of view, therefore, let us see what can be done about it.

A system correct in theory to the "nth" degree has been installed, let us assume, by an army of professional accountants than whom there are none better. They have come, they have done their best, they have rendered their bill and have absolutely and permanently departed from the scene. The organization heaves a great sigh of relief and proceeds to show the comptroller that the system will not work. The human element brings out its axes and hammers and proceeds to disfigure a once proud and beautiful creation. Time passes quickly, inventory time comes around, and our old friends, those disconcerting differences, are apt to be right where they always were.

A Point of Constructive Criticism

A point here may be worthy of attention—a point of constructive criticism, perhaps, but important because it is a source of original error that is apt to strengthen the defects of the human element rather than to overcome them. Accountants to-day are developing a degree of diplomacy which is going a long way toward overcoming the natural antagonism of the workers in the organization of clients; a natural antagonism to anyone who comes to make them more efficient, to show them how to do better work, to get better results, or, as the worker is inclined to put it, "to impose their ideas on others." Diplomacy of this sort is very good, and, with the intelligent aid of the executives within the client's organization, this natural antagonism of the human element is to a great extent softened down. It might sometimes be well to go a step further and to give the workers the idea that the system or the new plan is being put in by one of their own executives and that the accountants are helpers whom he has temporarily employed to aid him in the installation. The point here is quite obvious so far as its effect on the human element is concerned.

Furthermore, the idea that the work of the cost accountant is completed as soon as a system is installed is wrong in theory and poor in practice. Professional service should always keep in touch with the work installed, and this is especially true with regard to cost accounting service. It is quite evident to-day that business executives would much appreciate a more or less continuous contact with the professional accountants who have done the installation. The accountants owe it to themselves to see that this service is rendered. These are important considerations which bear upon the human element in all phases of accounting, and, of course, upon the present problem.

The Center of the Problem

If there were no errors of judgment and of execution, the human element would function perfectly and present no problem. Using the term "error" in its broadest sense, this then is really the center of the problem. Let us see what are the main causes of human error and what can be done to overcome or minimize them.

Outside of physical defects and character weakness, the two principal causes of human error are ignorance and carelessness. When combined in the same individual, this is a combination that is almost unbeatable, and the solution of the difficulty is generally found in a change of employment for the individual so encumbered. Let us picture in our minds a perfect system of material control being operated by a corps of storekeepers, material checkers, shipping clerks and recording clerks who are each and every one of them ignorant and careless. Imagine the same crew devoting their talents to the taking of stock at inventory time. Imagine the result. This situation, of course, is an exaggeration, but it exists

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to a certain degree everywhere. When we attempt to reconcile book records against an inventory that is itself a comedy of errors, then we have a cross-word puzzle that takes months or years to solve. An inventory is an inventory only when it is correct as to quantities and descriptions of articles. Otherwise it is worse than nothing, because its errors will rise up to smite us when the next inventory is taken.

No End to the Work

When an inventory is presented to the cost department, all nicely bound up and ready to be priced and valued, we are inclined to look upon it as the last word, beyond which there can be no recourse. Here it is; this time it is a *real* inventory; everything counted twice, checked and rechecked. If there are any differences in quantity, they must be the result of errors in the stores records. Everyone has heard this soothing song and perhaps has sung it himself upon occasion. But it is soon discovered that for some unaccountable reason there are differences. This wonderful double-barreled inventory does not agree in many ways with the perpetual inventory records—perpetual, as one man said, because there is no end to the work. So, now, what is to be done? Let us take certain items and count them again. We find the inventory quantity apparently correct. We check back here and check back there. The clerical work on the records is found to be errorless. Well, then, if this inventory is correct and the records since the previous inventory are correct, how can we account for this inventory being in excess of the records on those items in question? The previous inventory must have been wrong. Probably it was wrong. Cases have been known where two men would count certain material and get the same result and then two other men count the same material and get a different result, and both teams were careful and experienced men. Strive as we may, this human element will always be present to cause errors, and in the handling of material and material records, the effect is worse because the errors do not present themselves at once and sometimes not for a long time.

What Is an Inventory?

After all, what is an inventory? Is it not the best possible count that can be obtained of all material on hand at a certain date? Is it not the starting point for the new fiscal period, as well as the stopping point for the old? Can we ignore the fact that its errors affect two periods instead of just one? Are we not justified in lending every resource of system and management to the perfection of the inventory itself? To do this we must be everlastingly at it. Long periods should not elapse between inventories. Never mind the fiscal year; that should have nothing to do with the problem. Inventories and closing of books should be divorced from each other. Take care of the inventory and the books will take care of themselves and be closed when books should be closed, i.e., immediately after the end of the fiscal year, and not two or three months later. The way to take care of the inventory is to put enough competent men on the job; and the time to take the inventory is not this time or that time, but all the time. Make daily test counts on specific items, monthly inventories on certain complete sections of stores, immediate investigation of differences and adjustment of errors. Thus we can have several complete inventories of all divisions of stores during the fiscal year, instead of one or two. The monthly statements of earnings will be given an added factor of safety and the cloud of doubt removed. At the end of the fiscal year no inventory problem presents itself because there are no inventories other than those sections of stores which naturally fall due at that time. The books may be closed without delay and without heavy adjustments. All this means simply that we have watched and checked and counterchecked the human element every month and day throughout the year and reduced the effect of human error to a minimum.

We should perhaps touch briefly here upon the aid to material control that can be obtained through scientific storage, the use of code designations to show articles, stores division and general location of each item of material, and the use of sorting and tabulating machines whenever feasible—all of which contribute to the elimination of error in the handling of material and the keeping of records.

Human Element Should Be Developed

The human element, instead of being hired and fired as a remedy, should be developed, and in most cases can be developed, so that ignorance and carelessness will be reduced to a minimum. It goes without saying, of course, that care should be exercised in the original selection of men, but it is often the case that the annual or semi-annual inventory brings with it the loss of some men who have a real salvage value. A high percentage of labor turnover in material control departments is certainly not a cure for a lack of control. New men are apt to be no improvement over their predecessors and it takes time to discover this fact, to say nothing of the halt in the march of improvement.

Ignorance means not so much ignorance of the details of particular duties; it embraces lack of knowledge, lack of tact and lack of foresight. In a man of average intelligence, it can be overcome. It can be overcome provided the man is willing to listen to reason and is by nature receptive to suggestions from others. Much patience is required on the part of those in charge of a man's work if he is to overcome the handicap of ignorance. Instruction after error is better than harsh discipline, although sometimes both should be applied. Experience seems to indicate that where there is no response to the first efforts to overcome a man's ignorance it is quite useless to continue the effort. Some individuals who show a considerable amount of ability are so absolutely lacking in the acquirement of knowledge, tact, and foresight that their usefulness is hopelessly impaired. It is not easy to show a man his errors and how he can correct them. It takes time, tact, and patience on the part of those for whom he works. Sometimes the individual is best dealt with alone, but not always; and excellent results can be obtained from holding informal meetings of men whose work is related. At these meetings shortcomings are discussed in a friendly spirit and here, too, oftentimes suggestions for improvement originate from the men themselves. They know then that it is with the spirit of true co-operation that improvement in the human element is sought. Most normal persons will, in these days of modern enlightenment, respond favorably to this method, and any who fail to do so are of a type which it is useless to try to improve.

Carelessness an Inexcusable Fault

Carelessness is a greater and more inexcusable fault. In some cares it is hopelessly imbedded in an individual, but in most cases it can be worked out. It can be worked out if we can identify it from ignorance, because it requires different treatment. An error in the first instance may be due to ignorance, but repetition of the same error is a sure indication of carelessness. To show the evil results of carelessness and to demonstrate how it hampers the progress of the individual will sometimes overcome it, but experience indicates that if there is any cure the best one is a relentless discipline of the individual so as to drive home the idea that carelessness will not be tolerated. In a New England factory a young man who had worked there but a short time was dismissed on the spot for displaying carelessness of a high order. To-day he is again working in that factory at a responsible job that requires great care and attention to detail. The shock cured him permanently. We cannot temporize with carelessness as we can with ignorance. The remedy either works quickly or not at all.

There is ample proof in practical experience that the human

(*Continued on page 65*)

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SUMMARY

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Printing paper .....99 cs., 132 bls., 230 rolls
Wall paper ..... 161 rolls, 29 bls., 3 pgs., 1 cs.
Cigarette paper .....42 cs.
Packing paper .....87 bls.
Surface coated paper .....279 cs.
Writing paper .....4 cs.
Filter paper ..... 16 cs., 43 bls.
Paper hangings .....9 bls., 9 cs.
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Tissue paper .....50 cs.
Silk paper .....8 cs.
Parchment paper .....1 cs.
Kraft paper .....559 rolls
Transfer Paper .....8 cs.
Decalcomania Paper .....8 cs.
Flintstone Paper .....69 bls.
Envelopes and Drawing Paper .....8 cs.
Cardboard .....16 bls.
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(Continued on page 64)

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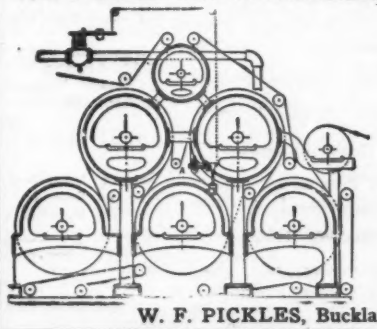

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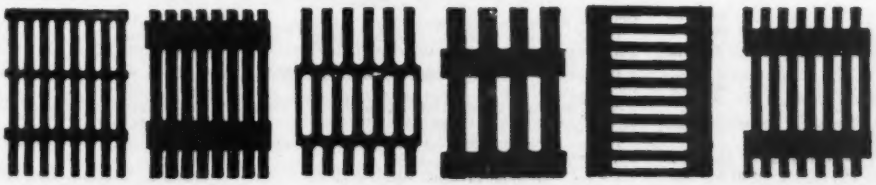

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Brown Bros. & Co., Galileo, Hull, 188 coils.

Brown Bros. & Co., Galileo, Hull, 9 bls.

Brown Bros. & Co., Jufuku Maru, Hamburg, 14 coils.

Brown Bros. & Co., Veendam, Rotterdam, 66 coils.

MANILA ROPE

International Purchasing Co., Rotterdam, Rotterdam, 11 pgs.

Ellermans' Wilson Line, Minnewaska, London, 107 coils.

WOOD PULP

Castle & Overton, Inc., Republic, Bremen, 410 bls. woodpulp, 82 tons.

Ira L. Beebe & Co., Inc., Republic, Bremen, 680 bls. woodpulp, 136 tons.

E. M. Sergeant & Co., United States, Oslo, 300 bls. chemical pulp.

Buck Kiaer & Co., United States, Copenhagen, 600 bls. woodpulp.

M. Gottesman & Co., Inc., St. Anthony, Umea, 2100 bls. sulphite, 355 tons.

Bulkley, Dunton & Co., St. Anthony, Umea, 500 bls. sulphite, 101 tons.

Bulkley, Dunton & Co., Portland Maru, 1000 bls. woodpulp.

Nilsen, Lyon & Co., Inc., Korsholm, Kotka, 180 bls. sulphate.

E. M. Sergeant & Co., Drottningholm, Gothenburg, 508 bls. sulphate.

Price & Pierce, Ltd., Drottningholm, 125 bls. dry pulp.

WOODPULP BOARDS

Lagerloef Trading Co., Korsholm Kotka, 214 bls.

Lowy & Lowy, Inc., Drottningholm, Gothenburg, 11 bls.

M. Meyerson, Drottningholm, Gothenburg, 18 bls.

PHILADELPHIA IMPORTS

Week ending August 15, 1925

A. W. Fenton, Inc., Hemland, Marseilles, 51 bls. rags.

The Stone Bros. Co., Inc., Hemland, Marseilles, 767 bls. rags.

New York Trust Co., Hemland, Marseilles, 55 bls. rags.

Castle & Overton, Inc., Hemland, Marseilles, 252 bls. rags.

Philadelphia National Bank, Hemland, Marseilles, 56 bls. rags.

Brown Bros. & Co., Galtymore, Leith, 71 bls. old rope.

Penn Rag & Metal Co., Blue Triangle, Oran, 187 bls. rags.

Neidich Process Co., Korsholm, Helsingfors, 42 cs. tissue paper.

Paper House of Penna., Korsholm, Kotka, 141 rolls newsprint.

Wilkinson Bros. & Co., Inc., Korsholm, Gothenburg, 28 bls. paper.

Wilder Bros. & Co., Korsholm, Gothenburg, 106 rolls.

Scandinavian Pulp Agency, Inc., Korsholm, Gothenburg, 254 bls. kraft pulp.

Nilsen, Lyon & Co., Korsholm, Gothenburg, 780 bls. sulphate pulp.

Brown Bros. & Co., West Arrow, Antwerp, 220 bls. rags.

Southwark National Bank, West Arrow, Antwerp, 146 bls. rags.

Union National Bank, West Arrow, Antwerp, 83 bls. rags.

National Bank of Commerce, West Arrow, Antwerp, 90 bls. rags.

National City Bank, West Arrow, Antwerp, 346 bls. rags.

New York Trust Co., West Arrow, Antwerp, 71 coils old rope.

E. J. Keller Co., Inc., West Arrow, Antwerp, 50 bls. rags.

E. J. Keller Co., Inc., West Arrow, Rotterdam, 53 bls. rags.

2nd National Bank, West Arrow, Rotterdam, 45 bls. rags.

Philadelphia National Bank, West Arrow, Rotterdam, 213 bls. rags.

Brown Bros. & Co., West Arrow, 39 bls. rags.

Castle & Overton, Inc., West Arrow, Rotterdam, 174 bls. rags.

Atste Bank, West Arrow, Rotterdam, 87 bls. rags.

D. I. Murphy, West Arrow, Rotterdam, 20 bls. rags.

Jessup & Moore Paper Co., Jean St. Johns, 690 cords woodpulp.

1st National Bank of St. Louis, West Harcuvar, Hamburg, 121 bls. rags.

National Bank of Commerce, West Harcuvar, Hamburg, 68 bls. rags.

Union National Bank, West Harcuvar, Hamburg, 38 bls. rags.

Brown Bros. & Co., West Harcuvar, Hamburg, 53 bls. rags.

Castle & Overton, Inc., West Harcuvar, Hamburg, 282 bls. rags.

Union Natonal Bank, Sudbury, Hamburg, 420 bls. rags.

Philadelphia National Bank, Sudbury, Hamburg, 72 rolls paper.

Philadelphia National Bank, Sudbury, Hamburg, 230 bls. paper.

Philadelphia National Bank, Sudbury, Hamburg, 649 bls. rags.
Brown Bros. & Co., Sudbury, Hamburg, 238 bls. rags.
Fidelity International Trust Co., Sudbury, Hamburg, 124 bls. rags.
E. J Keller Co., Inc., Sudbury, Hamburg, 39 bls. rags.
Corn Exchange Bank, Sudbury, Hamburg, 33 cs. surface coated paper.
Brown Bros. & Co., Grootendyk, Rotterdam, 424 bls. paperstock.
Brown Bros. & Co., Grootendyk, Rotterdam, 1000 bags woodflour.
Philadelphia National Bank, Grootendyk, Rotterdam, 73 bls. rags.
New York Trust Co., Grootendyk, Rotterdam, 52 bls. rags.
Keystone Blue Paper Co., Grootendyk, Rotterdam, 3 cs. paper.
2nd National Bank, Grootendyk, Rotterdam, 119 bls. rags.
E. M. Sergeant & Co., Topeka, Oslo, 150 bls. woodpulp.
J. Anderson & Co., Topeka, Greaker, 1200 bls. sulphate pulp.
The Borregaard Co., Inc., Topeka, Greaker, 1200 bls. sulphate pulp.
B. L. Soberski, Topeka, Greaker, 300 bags woodflour.
National City Bank, Egypt, Maru Hamburg, 144 bls. rags.
E. J. Keller Co., Inc., K. I. Luckenbach, Kobe, 1100 bls. rags.
E. J. Keller Co., Inc., Egypt Maru, Hamburg, 42 bls. rags.
Corn Exchange Bank, Egypt Maru, Hamburg, 81 cs. surface coated paper.
J. B. Moors & Co., Egypt Maru, Hamburg, 92 bls. rags.
Union National Bank, Egypt Maru, Hamburg, 38 bls. rags.
Minkouski & Co., Egypt Maru, Hamburg, 166 bls. rags.
Bank of New York, Egypt Maru, Hamburg, 100 bls. rags.
Castle & Overton, Inc., Dania, Oslo, 2000 bls. woodpulp.
Castle & Overton, Inc., —— Germany, 1095 bls. woodpulp.
Castle & Overton, Inc., Hameln, Hamburg, 104 bls. rags.
Castle & Overton, Inc., Panierian, Antwerp, 39 bls. rags.
Castle & Overton, Inc., Blommersdyk, Rotterdam, 136 bls. rags.
Castle & Overton, Inc., Rexmore, Scotland, 126 bls. rags.
Castle & Overton, Inc., Idarwald, Hamburg, 103 bls. rags.
Castle & Overton, Inc., Naperian, Antwerp, 133 bls. rags.
Castle & Overton, Inc., London Commerce, London, 125 coils old rope.

BALTIMORE IMPORTS

Week ending August 15, 1925

S. Shapiro & Co., Jufuku Maru, Hamburg, 13 cs. crepe paper.
National City Bank, Jufuku Maru, Hamburg, 1176 bls. chemical pulp, 165 tons.
Castle & Overton, Inc., West Inskip, Rotterdam, 765 bls. woodpulp.
Castle & Overton, Inc., —— Germany, 820 bls. woodpulp.
Pagel, Horton & Co., Inc., St. Anthony, Ornskoldsvik, 2700 bls. sulphite, 455 tons.
Pagel, Horton & Co., Inc., St. Anthony, Ornskoldsvik, 5400 bls. sulphate, 914 tons.
Pagel, Horton & Co., Inc., St. Anthony, Obbola, 10,045 bls. sulphate, 1,457 tons.
Bulkley, Dunton & Co., St. Anthony, Iggesund, 500 bls. sulphate, 101 tons.
M. Gottesman & Co., Inc., St. Anthony, Umea, 1500 bls. sulphite, 254 tons.
National City Bank, St. Anthony, Umea, 600 bls. sulphite, 101 tons.
A. W. Fenton, Inc., Vincent, Dunkirk, 417 bls. rags.

NEW ORLEANS IMPORTS

Week ending August 15, 1925

E. J. Keller Co., Inc., Bayou Chico, Rotterdam, 276 bls. bagging.
E. J. Keller Co., Inc., Coldbrook, Antwerp, 235 bls. bagging.
E. J. Keller Co., Inc., Coldbrook, Antwerp, 201 bls. rags.
E. J. Keller Co., Inc., Emergency Aid, Hamburg, 250 bls. bagging.
Castle & Overton, Inc., Meanricut, France, 129 bls. bagging.
Castle & Overton, Inc. Meanricut, France, 141 bls. rags.
Castle & Overton, Inc., Aquarius, Germany, 143 bls. rags.

NORFOLK IMPORTS

Week ending August 15, 1925

Castle & Overton, Inc., West Inskip, Rotterdam, 253 bls. woodpulp.

BOSTON IMPORTS

Week ending August 15, 1925

G. F. Malcolm, Rexmore, Liverpool, 14 cs. tissue paper.
Payne & Stillman, Rexmore, Liverpool, 27 bls. rags.
J. B. Moors & Co., Rexmore, Liverpool, 39 bls. rags.
Upson Walton C., Pr. Adams, Manila, 50 pgs. hemp rope.
Brown Bros. & Co., Novian, London, 178 coils old rope.
Baring Bros. & Co., Novian, London, 124 bls. wastepaper.
Crocker Burbank Co., Novian, London, 334 bls. wastepaper.
Furness, Withy & Co., Novian, London, 59 bls. wastepaper.
W. Schall & Co., Novian, London, 40 bls. rags.
G. M. Graves & Co., Novian, London, 92 bls. rags.
1st National Bank of Boston, Otho, Buenos Aires, 584 bags casein.
Davies, Turner & Co., Dania, Copenhagen, 35 bls. rags.
The Borregaard Co., Inc., Dania, Greaker, 300 bls. woodpulp.
J. Anderson & Co., Dania, Greaker, 5472 bls. woodpulp.
Castle & Overton, Inc., West Inskip, Rotterdam, 840 bls. woodpulp.
Castle & Overton, Inc., West Inskip, Rotterdam, 38 bls. rags.
Bulkley, Dunton & Co., Portland Maru, 2225 bls. woodpulp.
Bulkley, Dunton & Co., Primero, 5375 bls. woodpulp.

HUMAN ELEMENT CONTROL

(*Continued from page 60*)

element can be developed, that the improvement from within can be obtained, and that it deserves attention. In a plant in the Middle West an executive with no judgment of men, no appreciation of the human element, and no realization of its possibilities, to whom all men were the same, all ignorant, all careless—always had been and always would be—was getting such poor results and had what appeared to be such a poor staff that the situation looked quite hopeless. Nothing came out right, inventories and records were always far from agreement, and both were full of errors. The executive's answer that everyone was hopelessly ignorant, careless, and generally incompetent did not help in any way to solve the problem. He did not, of course, include himself in this category. As a matter of fact, there was nothing wrong with the cost system, but the human element was out of control. These difficulties were eventually almost entirely eliminated without any change in the cost system and but little change in the personnel. It was a task to train the same workers along new lines of thought and action, and it took time, but the response of the men to the new methods was in most cases good. With ignorance and carelessness reduced to a minimum, and a spirit of co-operation injected into the men, the improvement in the control of material was very marked. This was a problem in cost accounting, because the cost system was not functioning properly and the answer was found in the human element.

A Primary Problem of Control

So in controlling material we have a primary problem of controlling the human element which in turn controls the material. Some material will evaporate or melt away or undergo some chemical or physical changes of its own, but taking the question in a general way there is nothing that can happen to material without the action of some human element. Install a good system, control the human element, and the material control is assured. Men should be educated not only to their own particular duties, but to the other jobs with which their duties dove-tail. They should be shown as far as possible how the whole scheme, of which they are a part, works; and the ill effects of friction among themselves should be demonstrated so that co-operation will be encouraged and become their watchword. Initiative should be encouraged, suggestions from the men tested whenever possible, and a general atmosphere created which will cause each man to bring out the best that is in him. Discipline should not be sacrificed, but it should be of a character to spur men to higher endeavor rather than breed in them a feeling of uselessness. Rewards should be given for exceptional merit, but never for doing the obvious. These things are not easy to do, but they are worth while.

New York Market Review

Office of THE PAPER TRADE JOURNAL,
Wednesday, August 19, 1925.

The paper market is holding itself in a state of readiness for the fall business and the market stimulation that is bound to come to a greater or lesser degree with September. It is the general impression that this year a marked betterment will occur about the first of the month and that the paper demand for the remainder of the year will be considerably better than was experienced last year. And so the market is holding itself in readiness for what is to come. During the summer everyone more or less rests on the oars. Everybody is now beginning to bestir themselves a little more. Sales organizations which have found their best efforts more or less paralyzed by summer conditions are now getting into shape for a most strenuous campaign this fall. Every man will soon be keyed up to high tension; for everyone is convinced that there will soon be good business to be secured and every man in every sales organization has made up his mind to get his share or know the reason why. One who comes in contact with the market today will hear more talk of tomorrow than they do of today, more about what is going to be done next month than what is being done at this instant. With everyone's eyes focused on the near future it is hardly expected that conditions will change much until the September jumping off place is reached. As a matter of fact the market during the past week has been especially destitute of change. Prices hang just about so, business comes in in just about a routine volume and orders are invariably for small amounts. Two more weeks of this and the consumers are expected to wake up, taking a little more interest in the future and placing their orders on a more liberal basis. They are bound to wake up, too, for the holidays are not so far ahead and those who think of the future at no other period of the year are bound to do so when the calendar warns them to get in line for Christmas and New Year's.

News print is running along smoothly and it now looks as though for once the vacation period would be passed without the metropolitan newspapers cutting down their consumption to any such extent as in most years. At this particular time four of the New York dailies are engaged in a harrowing contest to attain circulation. Vast amounts of money are being expended to stimulate circulation and this has been successful in keeping news print consumption in the metropolitan area close to the normal pitch.

Paper specialties, especially those which are adapted to the vacation season and to outdoor use, have had an excellent summer. While the demand is beginning to slacken a bit it is still excellent and it is predicted that if the weather this Autumn is at all favorable the demand for these specialties will be unprecedented during September and October at any rate.

Box board is swinging along at a lively pace and book papers are showing some betterment. Coarse papers are still slow but none worse than they have been while orders for tissues and wrapping papers continue to straggle in from day to day.

Mechanical Pulp

The trend of the mechanical pulp market at this time is steady and, while consumers are not over energetic in their call for stock, there is a fair and consistent movement of stock against contracts. As is customary at this period of the year, stock is being permitted to accumulate in anticipation of the fall business which is expected to be more than normally good. There is no distress stock being loaded upon the market and for that reason conditions in the market tend to promote a pleasantly healthy tone.

Chemical Pulp

While the chemical pulp market can hardly be characterized as active there is a decided tendency to immediate betterment and the market is firm. Business comes in in a steady stream but the orders are usually small and call only for such stock as there is an immediate need of. It is believed that the advent of cooler weather will loosen up the consumers and that their perspective will take in a broader view of future needs.

Old Rope and Bagging

Old rope and bagging do not seem inclined to take on any great activity. Prices remain fixed. Old rope has a fairly consistent call but it is from day to day business placed for immediate requirements. Bagging demand is not so consistent but another two weeks should see it develop considerably.

Rags

While the developments in the rag market during the past week or two cannot be called a flurry it is a fact that there is a better feeling all up and down the line and that there is a much better demand for certain grades. Some grades, however, are remaining practically untouched and until they swing into line with the leaders the market will hardly be a satisfactory one for the rag men. Prices are not changing a great deal but the tendency is to higher levels and a quite general revision may be expected when things start to move.

Waste Paper

Paper stock is beginning to come back into its own. That does not mean that the demand is particularly spirited but it does mean that things have started to move in the right direction, the demand having showed a genuine improvement during the past week. The board mills are buying very liberally just now and there is more general inclination to buy for some period ahead.

Twine

Small orders for immediate requirements continue to be the rule in the twine market. There is no change in the price schedule and it is doubtful if this market will undergo any mentionable change until well along in September.

Western Paper Converting Co. To Locate at Salem

PORTLAND, Ore., August 17, 1925.—Western Paper Converting company, previously mentioned as considering several prospects for a site for a new plant in Oregon and Washington, have definitely decided upon Salem, Oregon, as a location for their new concern. E. A. O'Neill, F. W. Chausse and Lloyd are named as incorporators of the concern. Mr. Chausse is of the Portland printing firm of Chausse and Prudhomme.

The new plant will start with a building to cost between $35,000 and $40,000, dimensions 100 x 240, the walls of steel sash and glass with concrete supporting walls of steel or wood trusses.

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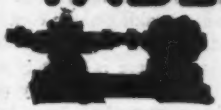
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Miscellaneous Markets

Office of THE PAPER TRADE JOURNAL,
Wednesday, August 19, 1925.

August has passed the half-way mark but the chemical market shows no tendency toward changing conditions although September is near at hand. The past week has, in all essentials, been merely a repetition of the past three or four. Contract buying is sustaining the market and spot buying is a negligible quantity as it has been for some time. The former is remarkably good for this period of the year with the consumers taking their contract withdrawals with perfect regularity and, in some cases, exceeding their stipulated quotas. On the other hand, there is scarcely any spot buying and it does not yet seem inclined to gather any momentum. Meanwhile prices are hanging where they have been for some time. Manufacturers will probably not announce their new schedules for some few weeks yet but the healthy state of the market during the present summer, as compared with the conditions during the same period last year, can be directly traced to the manner in which schedules have been adhered to. There have been instances where someone has kicked over the traces now and then but there has not been the mad scramble to give concessions that there was last year. In fact, consumers have met with such discouraging results in looking for concessions during the summer that most of them have given up in despair and have continued to confine themselves to buying only what they have to have and paying the price without argument. The advent of fall will find few of the consumers so well supplied that they will not have to enter the market on a more generous scale and while there is more available stock in most cases than there was two months ago the market is not overburdened with it and the supply is no greater than will probably be required as a safeguard against the increasing demand which is bound to come before long. The chemical men continue optimistic and, while the market may continue along with its present lethargy for two or three weeks longer, they seem to be fully warranted in their expectation of a good Fall business which should at least be considerably better than was experienced last year.

BLANC FIXE.—Most of the business which blanc fixe is doing at this time reflects the cautious buying spirit of the consumers. Repeat orders follow so closely upon the heals of original orders that it discloses the fact that the average consumer, in his anxiety to keep within what he considers safe bounds, is really undergauging his needs. Because of this the business is steady and consistent but the orders are small in volume. To the consumer, in his present attitude, there is no such thing as a future and he buys almost as reservedly as he would if he knew the end of the world was coming some day next week. That is nothing new but is getting to be an old story and the problem as to the cause of the over-caution is a hard one to solve. The price for the pulp is from $60 to $70 a ton while the powder is quoted at from $75 to $90 a ton.

CAUSTIC SODA.—Caustic soda is in what might be termed an indifferent state and the trading on a contract basis is all that is sustaining it. The contract withdrawals are being taken out satisfactorily but there will have to be a broadening out of activity in spot buying before caustic soda can do any boasting of its achievements. Such a development, it is believed, must occur soon. The present quotation is from 3.10 to 3.15 cents a pound.

CASEIN.—Casein, whose condition has not permitted any complaint at any stage of the game for a long time, appears to be getting into better shape and there is indication that Fall may find it back in the very spirited state it was in some weeks ago. The price is 12½ cents a pound with a tendency to shade this price a little when good business invites such a move.

CHINA CLAY.—The demand for China clay has been livening up to some extent during the past week. For weeks previous to the hot weather period this commodity held a most spirited position in the market and even the advent of hot weather did not slacken its pace so but what it continued to do exceedingly well. The acceleration it has experienced during the past week seems to indicate that sometime in September China clay will again assume a position equally good to that it occupied previous to the summer slack period. The imported grades are bringing from $16 to $20 a ton and the domestic grades from $12 to $15 a ton.

CHLORINE.—There is a dearth of business in the chlorine field. There is no buying except for immediate needs and as immediate needs are not over vigorous the demand is consequently quiet. The price is being closely adhered to and those who look for concessions are unable to obtain them. The price remains at from $4.50 to $7.00 a pound in tanks.

ROSIN.—The excellent demand for rosin continues and the price still radiates about the level it has held to for several weeks. Consumers are constantly entering the market with orders, contract withdrawals are being exceeded in many cases and the outlook for rosin is good for a considerable period ahead. The naval stores centers are quoting at this writing $10.15.

SALT CAKE.—Salt cake is doing somewhat better. The demand has been very satisfactory throughout the entire summer and all that is needed to give salt cake real impetus is cooler weather and that it will not have to wait for long. The price remains at from $16 to $17 a ton.

SODA ASH.—There is but little activity so far as soda ash is concerned. It is doing a moderate contract business but the spot buying is still too limited to prove much of an enlivening factor for it. It is selling at 1.38 cents a pound on a flat basis at the works.

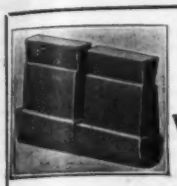
SULPHATE OF ALUMINA.—There is a slow market now in sulphate of alumina. Business on a contract basis is reasonably fair for this time of the year but there is not enough spot demand to help stimulate the call. In two or three weeks, however, a marked improvement is anticipated. The commercial grades are still quoted at from 1.40 to 1.45 cents a pound at the Eastern works and the iron free is bringing from 2.10 to 2.25 cents a pound.

SULPHUR.—The excellent sulphur demand continues, with contract withdrawals being up to the consumers' quota in practically every instance and often in excess of the quota. The price is from $19 to $20 a ton.

TALC.—It is the same old story with talc. The market is slow and orders are meager and limited to the strictest immediate needs. From $17 to $18 a ton is still being quoted.

Wooded Wealth of Ontario

Hon. James Lyons, Minister of Lands and Forest for Ontario, in speaking before the retail lumbermen of Ontario and Quebec, contradicted the general impression that there was a scarcity of white pine in the province and declared there was sufficient to last for the next fifty years. During the past five years, Ontario had had destroyed by fire over a million acres of forest annually and in 1923 two million acres were wiped out, which loss was far greater than the consumption for industrial purposes. Each day five thousand tons of newsprint paper was produced in Canada, of which Ontario supplied over half. Four and a half million cords of pulp wood were required yearly, which with the growing production of news print in the Dominion, would be increased in three years to six and a half million cords. He spoke of the great need for the protection of the forests and of the effective work done in forest surveying and safeguarding by the fleet of twenty hydroplanes, including two of the fastest machines in the world.



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Advance Bag and Paper, 7s 1943	98	100*
Bastrop Pulp and Paper, 7½s 1932	104	108*
Brompton Pulp and Paper, 6s 1927	94	96
Beaver Board, 8s 1933	92	94
Bedford Pulp and Paper, 6½s 1942	98	...
Berkshire Hills Paper Co., 8s 1941	...	80
Beaver Board, N. Y. Curb, 8s 1933	93	95
Beaver Products Corp., 7½s 1942	104	106
Belgo Canadian Paper, 6s 1943	100	101
Brown Paper Co., 8s 1931	102	...
Berlin Mills, 5s 1931	98	...
Bryant Paper Co., 6s 1942	99	102*
Brown Company Serial, 6s 1925-43	97	100
Central Paper 6½s 1925-42	91	94
Cape Breton Pulp and Paper, 6s 1932	100	...
Carthage Sulphite Pulp and Paper, 8s 1941	40	50
Champion Coated Paper Co., 6s 1924-34	...	102
Champion Fibre Co. Notes, 8s 1930	101	...
Cherry River Paper, 5s 1929	97	100*
Donnaconna Paper Co., Ltd., 6s 1940	99	101
Eddy Paper, 7½s 1931	97	...
Eagle Paper, 6½s 1932	96	100
Escanaba Paper, 6s 1933	87	95*
Fox River Paper, 7s 1931	100	...
Fort Orange Paper Co., 7s 1942	95	99
Eddy Paper Co., 7½s 1931	95	...
Gilbert Paper Co., 7s 1927	96	...
Gilbert Paper Co., 6½s 1923-29	101	102*
Hammermill Paper Co., 6s 1930-39	99	...
Hercules Corp'n, 8s 1936	100	...
Hummell, Ross Fibre Corp., 7s 1925	90	...
Jessup & Moore Paper Co., 6s 1939	90	97
Kenmore Pulp and Paper Co., 6s 1937	90	...
Lake Superior Pulp and Paper, 6s 1941	105	...
Mattagami Pulp and Paper, 6s 1937	90	...
Marinette & Menominee, 7½s 1936	104	...
National Paper and Type, 6s 1947	96	99*
Oswego Falls Corp., 8s 1942	102	105
Orono Pulp and Paper, 5s 1941	93	96*
Orono Pulp and Paper, 6s 1943	97	100*
Oxford Paper Co., 6s 1947	101	...
Paterson Parchment Paper, 5½s 1927-28	98	100
Paterson Parchment, 6s 1938	98	100
Parker Young Co., 6½s 1944	92	96
Price Bros. & Co. Ltd., 6s 1943	100	102
Provincial Paper Mills, Ltd., 6s 1940	97	...
Riordon Co., Series A, 8s 1940	115	118
Riordan Paper, 6s 1924	95	...
Riordan Pulp and Paper, Ltd., 6s, 1929	33	35
River Raisin Paper, 8s 1936	104	106
St. Maurice Paper Co., Ltd., 5½s, 1929	98½	99¾
St. Regis Paper, 6½s, 1929-35	97	102
Smith (Howard) Paper Mills, 7s 1941	98	100
Smith (Howard) Paper Mills, 6s 1934	98	...
St. Croix Paper, 5s 1923-37	95	...
Stevens & Thomson Paper, 6s 1942	88	92
Spanish River Pulp and Paper, 6s 1931	105	108
Spanish River Pulp and Paper, Gen 8s 1941	106	109
Ticonderoga Pulp and Paper Co., 6s, 1940	91	95
Ticonderoga Pulp & Paper 1-5, 1930	88	93
S. D. Warren Company, 6s, 1945	97	100
Whittaker Paper, 1st 7s 1942	96	98
Watab Paper Co., 6½s 1942	100	104
Waterway Paper Products, 7s 1924-27	95	100
Wayagamack Pulp and Paper, Ltd., 6s 1951	87	90

STOCKS	BID	ASKED
Abitibi Power and Paper, Com	65	68
Abitibi Power and Paper, Pfd	104	...
Advance Bag and Paper, Com	8	12*
Advance Bag and Paper, Pfd	77	...
Beaver Board, Com	4	6
Beaver Board, Pfd	32	35
Bryant Paper, Cap	12	...
Bryant Paper, Pfd	9	...
Chicago Mill & Lumber Co., Com	63	...
Chicago Mill & Lumber Co., Pfd	98	104
Crown Williamette, Com	93	98*
Crown Williamette, 7% A, Pfd	98	SW
Donnaconna Paper, Com	42	48
Donnaconna Paper, Pfd	93	98*
Great Northern Paper, Cap	260	270
Jessup & Moore Paper, Pfd	73	77
International Paper Co., Com	64	66
International Paper Co., Pfd. 6%	75	80
Mengel Company, Com	64	68
Mengel Company, Pfd	83	93
Oxford Papers, Com	93	97
Oxford Paper Co., Pfd	98	...
Provincial Paper Co., Com	94	98
Provincial Paper Co., Pfd	99	...
Price Brothers, Cap	39	40
St. Croix Paper	185	215
St. Maurice Paper Co., Cap	82	85
St. Regis Paper Co., Cap	54	56
Spanish River Pulp and Paper, Com	104	105
Spanish River Pulp and Paper, Pfd	115	117
Ticonderoga Pulp and Paper, Cap	145	...
West Virginia Pulp and Paper, Cap	44	47
West Virginia Pulp and Paper, Pfd	95	100
Whittaker Paper, Com	25	35
Whittaker Paper, Pfd	55	...

* Nominal.

Paper

(F. o. b. Mill)

Ledgers	11.00	@38.00
Bonds	9.00	@45.00
Writings—		
Extra Superfine	14.00	@32.00
Superfine	14.00	@32.00
Tub Sized	10.00	@15.00
Engine Sized	8.00	@11.00
News—		
Rolls, contract	3.50	@ 3.90
Rolls, transit	3.75	@ 4.25
Sheets	4.00	@ 4.25
Side Runs	3.25	@ 4.00
Book, Cased—		
S. & S. C.	7.00	@ 9.75
M. F.	6.25	@ 8.75
Coated and Enamel	8.00	@15.00
Lithograph	8.00	@15.00
Tissues—Per Ream		
White No. 1	.70	@ .90
Anti-Tarnish	1.10	@ 1.90
Colored	1.00	@ 2.00
White No. 2	.65	@ .75
Kraft	.85	@ .95
Manila	.70	@ .80
Kraft—		
No. 1 Domestic	5.50	@ 6.25
No. 2 Domestic	4.25	@ 4.50
Imported	5.50	@ 5.75
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.75	@ 5.25
No. 2 Wood	4.00	@ 4.50
Butchers	3.50	@ 4.00
Fibre Papers—		
No. 1 Fibre	4.50	@ 5.00
No. 2 Fibre	4.25	@ 4.75
Common Bogus	2.50	@ 2.75
S. Screening	3.00	@ 3.50
Card Middler	4.00	@ 5.00
Boards—per ton—		
News	45.00	@47.50
Straw	57.00	@60.00
Chip	42.00	@45.00
Binders' Boards	72.50	@77.50
Sgl. Mla. Ll. Chip	58.00	@60.00
Wood Pulp	70.00	@75.00
Container	62.50	@67.50
Sulphate Screenings—		
Coarse	.75	@ .85
Refined	1.75	@ 2.00
Ground Wood—		
Screenings	20.00	@25.00
Glassine—		
Bleached, basis 25 lbs.	13.00	@16.00
Bleached, basis 20 lbs.	15.00	@16.00

Mechanical Pulp

(Ex-Dock)

No. 1 Imported	33.00	@37.00

(F. o. b. Mill)

No. 1 Domestic	28.00	@32.00

Chemical Pulp

(Ex-Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	4.00	@ 4.50
Easy Bleaching	2.80	@ 3.25
No. 1 strong unbleached	2.75	@ 3.25
No. 2 strong unbleached	2.45	@ 2.75
No. 1 Kraft	2.95	@ 3.20
Sulphate—		
Bleached	3.65	@ 3.85

(F. o. b. Pulp Mill)

Sulphite (Domestic)—		
Bleached	3.75	@ 4.50
Easy Bleaching Sulphite	2.90	@ 3.25
News Sulphite	2.55	@ 2.80
Mitscherlich	3.25	@ 3.75
Kraft (Domestic)	2.75	@ 3.25
Soda Bleached	4.00	@ 4.25

Domestic Rags

New Rags

Prices to Mill f. o. b. N. Y.

Shirt Cuttings—		
New White, No. 1	14.50	@15.25
New White, No. 2	8.00	@10.00
Silesias No. 1	10.50	@11.50
New Unbleached	14.00	@15.00
Washables	6.50	@ 9.25
Fancy	9.75	@10.25
Blue Overall	10.00	@11.00
New Blue Prints	7.50	@ 8.50
New Soft Blacks	5.75	@ 6.20
Mixed Khaki Cuttings	5.75	@ 6.25
Pink Corset Cuttings	10.25	@10.75
Pink Muslin	10.00	@10.50
New Light Seconds	3.25	@ 3.50
O. D. Khaki Cuttings	6.25	@ 7.25
Men's Corduroy	6.25	@ 6.75
New Mixed Blacks	4.00	@ 4.50

Old Rags

White, No. 1—		
Repacked	6.50	@ 7.50
Miscellaneous	6.50	@ 7.00
White, No. 2—		
Repacked	4.25	@ 4.50
Miscellaneous	3.75	@ 4.25
St. Soiled, White	3.00	@ 3.50
Thirds and Blues—		
Repacked	4.00	@ 4.25
Miscellaneous	3.25	@ 3.50
Black Stockings	3.75	@ 4.25
Roofing Rags—		
Cloth Strippings	2.50	@ 2.75
No. 1	2.40	@ 2.50
No. 2	2.40	@ 2.50
No. 3	2.25	@ 2.50
No. 4	2.30	@ 2.40
No. 5A	1.50	@ 1.75

Foreign Rags

New Light Silesias	9.50	@10.50
Light Flannelettes	10.50	@11.50
Unbleached Cottons	14.00	@15.00
New White Cuttings	14.00	@15.00
New Light Oxfords	10.00	@11.00
New Light Prints	9.00	@10.00
New Mixed Cuttings	4.25	@ 4.50
New Dark Cuttings	4.00	@ 4.25
No. 1 White Linens	10.00	@11.00
No. 2 White Linens	7.25	@ 8.25
No. 3 White Linens	6.25	@ 6.75
No. 4 White Linens	4.50	@ 5.50
Old Extra Light Prints	4.25	@ 4.75
Ord. Light Prints	3.75	@ 4.25
Med Light Prints	3.75	@ 4.25
Dutch Blue Cottons	4.00	@ 4.50
Ger. Blue Cottons	3.75	@ 4.00
Ger. Blue Linens	4.25	@ 4.75
Checks and Blues	3.25	@ 3.50
Linsay Garments	2.45	@ 2.50
Dark Cottons	2.35	@ 2.45
Shoppery	2.25	@ 2.35
French Blues	4.00	@ 4.50

Bagging

Prices to Mill F. o. b. N. Y.

Gunny No. 1—		
Foreign	3.15	@ 3.25
Domestic	3.15	@ 3.25
Wool Tares, light	2.50	@ 2.60
Wool, Tares, heavy	2.60	@ 2.70
Bright, Bagging	2.55	@ 2.65
Mixed Bagging	2.30	@ 2.40
Sound Bagging	2.10	@ 2.20
Roofing Bagging	2.00	@ 2.25
Manila Rope—		
Foreign	6.35	@ 6.85
Domestic	6.75	@ 7.25
New Bu. Cut	3.60	@ 3.85
Hessian Jute Threads—		
Foreign	4.00	@ 4.25
Domestic	3.25	@ 3.50

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, White, No. 1	3.50	@ 3.70
Hard, White, No. 2	3.25	@ 3.50
Soft, White, No. 1	2.80	@ 2.90
Flat Stock—		
Stitchless	1.45	@ 1.55
Overissue Mag	1.25	@ 1.40
Solid Flat Book	1.25	@ 1.40
Crumpled No. 1	1.25	@ 1.35
Solid Book Ledger	1.70	@ 1.80
Ledger Stock	1.40	@ 1.50
New B. B. Chips	.65	@ .75
Manilas—		
New Env. Cut	2.25	@ 2.40
New Cut. No. 1.	1.85	@ 2.25
Extra No. 1 old	1.40	@ 1.50
Print	1.20	@ 1.30
Container Board	.70	@ .90
Bogus Wrapper	1.00	@ 1.10
Old Krafts Machine compressed bales	2.00	@ 2.10
News—		
No. 1 White News	1.85	@ 2.00
Strictly Overissue	1.05	@ 1.15
Strictly Folded	.75	@ .85
No. 1 Mixed Paper	.65	@ .70
Common Paper	.50	@ .55

Twines

Cotton—(F. o. b. Mill)—		
No. 1	.42	@ .45
No. 2	.41	@ .43
No. 3	.40	@ .42
India, No. 6 basis—		
Light	.19	@ .20
Dark	.17	@ .19
B. C., 18 basis	.39	@ .41
A. B. Italian, 18 Basis	.56	@ .61

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FELTS
H. WATERBURY & SONS CO.
ORISKANY, N. Y.

Finished Jute—			
Dark, 18 basis...	.30	@	.31
Light, 18 basis..	.28	@	.30
Jute Wrapping, 3-6 Ply—			
No. 1	.18	@	.20
No. 2	.18	@	.20
Tube Rope—			
4-ply and larger..	.15	@	.17
Fine Tube Yarn—			
5-ply and larger.	.20	@	.28
4-ply	.21	@	.24
3-ply	.22	@	.25
Unfinished India—			
Basis	.14	@	.15
Paper Makers' Twine			
Balls	.12	@	.13
Box Twine, 2-3 ply	.14	@	.15
Jute Rope	.20	@	.40
Ameri. Hemp, 6...	.30	@	.32
Sisal Hay Rope—			
No. 1 Basis	.14	@	.16
No. 2 Basis.....	.10	@	.12
Sisal Lath Yarn—			
No. 1	.14	@	.15
No. 2	.11	@	.13
Manila Rope	.18	@	.19

CHICAGO

Paper

F. o. b. Mill

All Rag Bond.....	35	@	40
No. 1 Rag Bond...	25	@	35
No. 2 Rag Bond...	14	@	25
Water Marked Sulphite	9	@	12
Sulphite Bond.....	7	@	10¼
Sulphite Ledger....	9	@	12
Superfine Writing..	18	@	24
No. 1 Fine Writing	14	@	18
No. 2 Fine Writing	12	@	14
No. 3 Fine Writing	9	@	12
No. 1 M. F. Book.	5½	@	7½
No. 1 S. & S. C. Book	6	@	7¼
Coated Book.....	7½	@	10
Coated Label....	7½	@	10
News—Roll, mill...	3½	@	4¼
News—Sheets, mill	3¾	@	4¾
No. 1 Manila.....	4½	@	5½
No. 1 Fibre.....	4½	@	5
No. 2 Manila.....	4	@	4½
Butchers' Manila..	3¾	@	4¼
No. 1 Kraft.....	6	@	6½
No. 2 Kraft (Southern Grade).....	4	@	4½
No. 2 Kraft (Northern Grade).....	5	@	5½
Wood Tag Boards.	4¼	@	6¼
Sulphite Screenings	3	@	3¼
Manila Tissue, 24x36 sheet	7¼	@	7¾
White Tissue, 20x30 sheet	7¼	@	7½
Boards, per ton—			
(Delivered Central Territory)			
Plain Chip 45.00		@47.50	
Solid News.....47.50		@50.00	
Manila Line Chip.57.50		@60.00	
Container Lined—			
(Delivered Central Territory)			
85 Test	—	@75.00	
100 Test	—	@80.00	

Old Papers

F. o. b. Chicago

Shavings—			
No. 1 Hard White	3.15	@	3.25
White Envel. Cuttings	3.15	@	3.25
No. 1 Soft Shav.	2.85	@	2.95
No. 1 Mixed....	1.45	@	1.50
No. 2 Mixed....	1.15	@	1.20
Ledger and Writings	1.50	@	1.55
Solid Books	1.40	@	1.45
No. 1 Light Books	1.00	@	1.05
Blanks	1.90	@	1.95
Kraft	2.10	@	2.20
New Kraft Cuts.	2.30	@	2.35
Manila Envelope Cuttings	2.40	@	2.50
Ex. No. 1 Manila..	2.00	@	2.10
Print Manila	.90	@	.95
Folded News (overissue)	.85	@	.90
Old Newspapers—			
No. 1	.70	@	.75
No. 2	.60	@	.65
Mixed Papers—			
No. 1	.70	@	.75
No. 2	.50	@	.55
Straw Clippings....	.75	@	.80
Binders' Clippings..	.70	@	.75
Roofing Stocks, f. o. b. Chicago, Net Cash—			
No. 1.....47.00		@52.00	
No. 2.....45.00		@50.00	
No. 3 .....43.00		@48.00	
No. 4.....41.00		@46.00	

BOSTON

Paper

Ledgers—			
Sulphite	.08½	@	.18
Rag content	.18	@	.36½
All Rag	.38	@	.50
Bonds—			
Sulphite	.07½	@	.10½
Rag Content.....	.17	@	.45
All Rag	.36½	@	.51
Writings	.08	@	.20
Superfines	.22	@	.50
News	.04	@	.04½
Book, Super	.08	@	.10
Book, Coated	.09	@	.14
Coated Litho.....	.09½	@	.15
Label	.09½	@	.15
Jute Manila No. 1.	.11	@	.12
Manila, Sul. No. 1.	.05	@	.05
Manila, Sul. No. 2.	.03¾	@	.04½
No. 1 Kraft.....	.06¼	@	.06½
No. 2 Kraft.....	.05¾	@	.06
Common Bogus....	.03½	@	.04
Straw Board	—	@	50.00
News Board	—	@	47.00
Chip Board	—	@	45.00
Single Manila Pulp lined board 55.00		@	60.00
Single White, patent coated board 75.00		@	82.50
Wood Pulp Board..80.00		@	85.00
Binder Boards.....75.00		@	85.00
Tarred Felts—			
Regular 61.00		@	63.00
Slaters 66.00		@	68.00
Best Tarred, 1 Ply, roll	1.50	@	1.60
Best Tarred, 2 Ply, roll	1.70	@	1.80
Best Tarred, 3 Ply, roll	2.00	@	2.10

Old Papers

Shavings—			
No. 1 Hard White	4.00	@	3.75
White Blank News	1.75	@	2.00
Manila Env. Cuttings	2.80	@	3.00
No. 2 Hard White	3.25	@	3.50
No. 1 Soft White..	.04½	@	—
No. 2 Soft White..	.03¼	@	—
No. 1 Mixed.....	1.60	@	1.75
No. 2 Mixed.....	1.25	@	1.50
Solid Ledger Stock	2.00	@	1.75
Writing Paper	—	@	1.50
No. 1 Books, Heavy	1.75	@	1.50
No. 1 Books, Light	—	@	1.25
No. 1 New Manila.	2.50	@	2.60
No. 1 Old Manila.	1.75	@	2.00
Print Manila	1.05	@	1.20
Old Kraft.....	2.00	@	—
Overissue News ..	1.00	@	6.54
Old Newspapers....	.70	@	5.54
No. 1 Mixed Paper	.60	@	.47½
Box Board, Chip..	.60	@	.50

Bagging

Price f. o. b. Boston

Gunny No. 1—			
Foreign	—	@	3.00
Domestic	—	@	3.25
Manila Rope	6.00	@	6.50
Mixed Rope	1.50	@	2.25
Scrap burlaps.....	—	@	2.25
Wool Tares, heavy.	—	@	3.00
Mixed Strings...	—	@	1.90
New Burlap Cuttings	—	@	3.75

Domestic Rags (New)

Price f. o. b. Boston

Shirt Cuttings—			
New White No. 1	.15½	@	.15
Silesias, No. 1...	.11	@	—
New Unbleached.	.14¼	@	.15
Washable	.07¾	@	.08
Fancy	.10½	@	—
Cottons—According to Grades—Blue—			
Blue overalls.....	12½	@	—
New Black, soft...	.07	@	—
Khaki Cuttings.....	.07	@	—
Corduroy	.04	@	.05
New Canvas	.12	@	.12½

Domestic Rags (Old)

Price f. o. b. Boston

White No. 1 .....10.00		@	—
Repacked	9.50	@	—
Miscellaneous	8.50	@	—
White No. 2—			
Repacked	6.50	@	—
Miscellaneous.....	5.25	@	—
Thirds and Blues—			
Repacked	5.00	@	—
Miscellaneous ...	3.50	@	—
Roofing Stock—			
No. 1	3.00	@	—
No. 2	3.00	@	—
No. 3	2.50	@	—
No. 4	2.00	@	—

PHILADELPHIA

Paper

Bonds	.07	@	.40
Ledgers	.11	@	.40
Writings—			
Superfine	.13	@	.18
Extra fine	—	@	.22
Fine	.20	@	.26½
Fine, No. 2.....	.16	@	.25
Fine, No. 3.....	.12	@	.20
Book, M. F.....	.06	@	.07
Book, S. S. & C...	.06	@	.07½
Book, Coated ...	.11	@	.16
Coated Lithograph.	.09	@	.12
Label	.09	@	.12
News	.03¾	@	.04
No. 1 Jute Manila.	.09½	@	—
Manila Sul., No. 1	.04½	@	.06
Manila No. 2.....	.04	@	.04½
No. 2 Kraft.....	.05¼	@	.05¾
No. 1 Kraft.....	.06¼	@	.06½
Common Bogus	.02¾	@	—
Straw Board 56.00		@55.00	
News Board .....Nominal		@	—
Chip Board .....Nominal		@	—
Wood Pulp Board.	4.50	@	5.00
(Carload Lots)			
Binder Boards—			
Per ton 75.00		@80.00	
Carload lots 65.00		@70.00	
Tarred Felts—			
Regular 66.00		&68.00	
Slaters 70.00		@72.00	
Best Tarred, 1-ply (per roll)	1.85	@	1.95
Best Tarred, 2-ply (per roll)	1.55	@	1.70
Best Tarred, 3-ply.	2.10	@	2.15

Bagging

F. o. b. Phila.

Gunny, No. 1—			
Foreign	3.00	@	3.25
Domestic	3.00	@	3.25
Manila Rope	4.75	@	6.00
Sisal Rope	2.50	@	—
Mixed Rope	1.00	@	1.25
Scrap Burlaps...	2.25	@	2.50
Wool Tares, heavy.	2.00	@	2.13
Mixed Strings...	1.25	@	—
No. 1, New Lt. Burlap	3.50	@	3.75
New Burlap Cuttings	3.75	@	—

Old Papers

F. o. b. Phila.

Shavings—			
No. 1 Hard White	3.50	@	3.60
No. 2 Hard White	3.00	@	3.25
No. 1 Soft White	2.60	@	2.70
No. 2 Soft White	2.00	@	2.20
No. 1 Mixed....	1.50	@	1.60
No. 2 Mixed....	1.00	@	1.10
Solid Ledger Stock.	1.75	@	1.90
Writing Paper	1.60	@	1.65
No. 1 Books, heavy	1.30	@	1.40
No. 2 Books, light.	1.20	@	1.25
No. 1 New Manila.	1.80	@	2.00
No. 1 Old Manila..	1.60	@	1.75
Print Manila.....	1.25	@	1.35
Container Manila..	1.00	@	1.10
Old Kraft	2.00	@	2.10
Over issue News...	1.00	@	1.10
Old Newspaper....	.70	@	.75
No. 1 Mixed Paper	.65	@	.70
Common Paper....	.50	@	.60
Straw Board, Chip.	.60	@	.65
Binders Bd., Chip..	.60	@	.65

Domestic Rags—New

Price to Mill, f. o. b. Phila.

Shirt Cuttings—			
New White, No. 1	.13½	@	.14
New White, No. 2	.06½	@	—
Silesias, No. 1...	.10½	@	.11
New Unbleached.	.14	@	.14½
Washable	.07¾	@	.08¼
Fancy	.09½	@	.10
Cottons—according to grades—			
Blue Overall.....	.11	@	.11½
New Blue.....	.04	@	.04¼
New Black Soft..	.06	@	.06¾
New Light Seconds	.03½	@	.03¾
Khaki Cuttings..	.06½	@	.07
Corduroy	.04	@	.04½
New Canvas	.08¾	@	.09
New Black Mixed	.05	@	.05½

Old

White, No. 1—			
Repacked	6.75	@	7.00
Miscellaneous ...	6.25	@	6.50
White, No. 2—			
Repacked	.05	@	.05¼
Miscellaneous ...	.04¾	@	.05
Thirds and Blues—			
Repacked	3.75	@	4.00
Miscellaneous ...	3.15	@	3.25
Black Stockings.	4.25	@	4.50
Roofing Stock—			
No. 1	2.00	@	2.15
No. 2	1.90	@	2.00
No. 3	1.25	@	1.35
No. 4	1.10	@	1.20
No. 5A	1.10	@	1.15
B	1.05	@	1.10
C	1.00	@	1.05

TORONTO

Paper

(Mill Prices to Jobbers f. o. b. Mill)

Bond—			
Sulphite	.10½	@	.12½
Light tinted	.11	@	.13½
Dark tinted	.12½	@	.15
Ledgers (sulphite).	—	@	.13
Ledgers No. 1.....	.36	@	—
Ledgers No. 2.....	.27	@	—
Writing	.09½	@	
Writing S. C.	.10	@	
News f. o. b. Mills—			
Rolls (carloads)..	3.50	@	—
Sheets (carloads).	—	@	4.25
Sheets (2 tons or over)	—	@	4.60
Book—			
No. 1 M. F. (carloads)	8.00	@	—
No. 2 M. F. (carloads)	7.50	@	—
No. 3 M. F. (carloads)	7.00	@	—
No. 1 S. C. (carloads)	8.50	@	—
No. 2 S. C. (carloads)	8.00	@	—
No. 3 S. C. (carloads)	7.50	@	—
No. 1 Coated and litho 14.50		@	—
No. 2 Coated and litho 13.50		@	—
No. 3 Coated and litho 12.75		@	—
Coated tinted	.15	@	—
Wrapping—			
Rag Brown	4.75	@	—
White Rap	5.25	@	—
"B" Manila	5.50	@	—
No. 1 Manila ...	6.50	@	—
Fiber	6.50	@	—
Kraft, M. F.....	7.00	@	—
M. G.	7.15	@	—

Pulp

(F. o. b. Mill)

Ground wood.....29.00		@30.00	
Sulphite easy bleaching 60.00		@65.00	
Sulphite news grade	55.00	@58.00	
Sulphite, bleached.	75.00	@80.00	
Sulphate 62.50		@65.00	

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. cut..	3.60	@	—
Soft White Book shavings	—	@	3.10
White Blk, News	1.70	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.25	@	—
Light and Crumpled Book Stock	1.10	@	—
Ledgers and Writings	1.40	@	—
Solid Ledgers ...	1.40	@	—
Manilas—			
New Manila Cut.	—	@	1.60
Printed Manilas..	1.00	@	—
Kraft	2.10	@	2.10
News and Scrap—			
Strictly Overissue	.80	@	—
Folded News.....	.80	@	—
No. 1 Mixed Papers	.35	@	—
Domestic Rags—			
Price to mills, f. o. b. Toronto Per lb.			
No. 1 White shirt cuttings	.14½	@	.14¾
No. 2 White shirt cuttings	.08	@	.08½
Fancy shirt cuttings	.09¾	@	.10
No. 1 Old Whites..	—	@	—
Third and blues...	—	@	—